OHIO ST E
UNIVER
MAY 17
LIBRA

DOMESTIC ENGINEERING

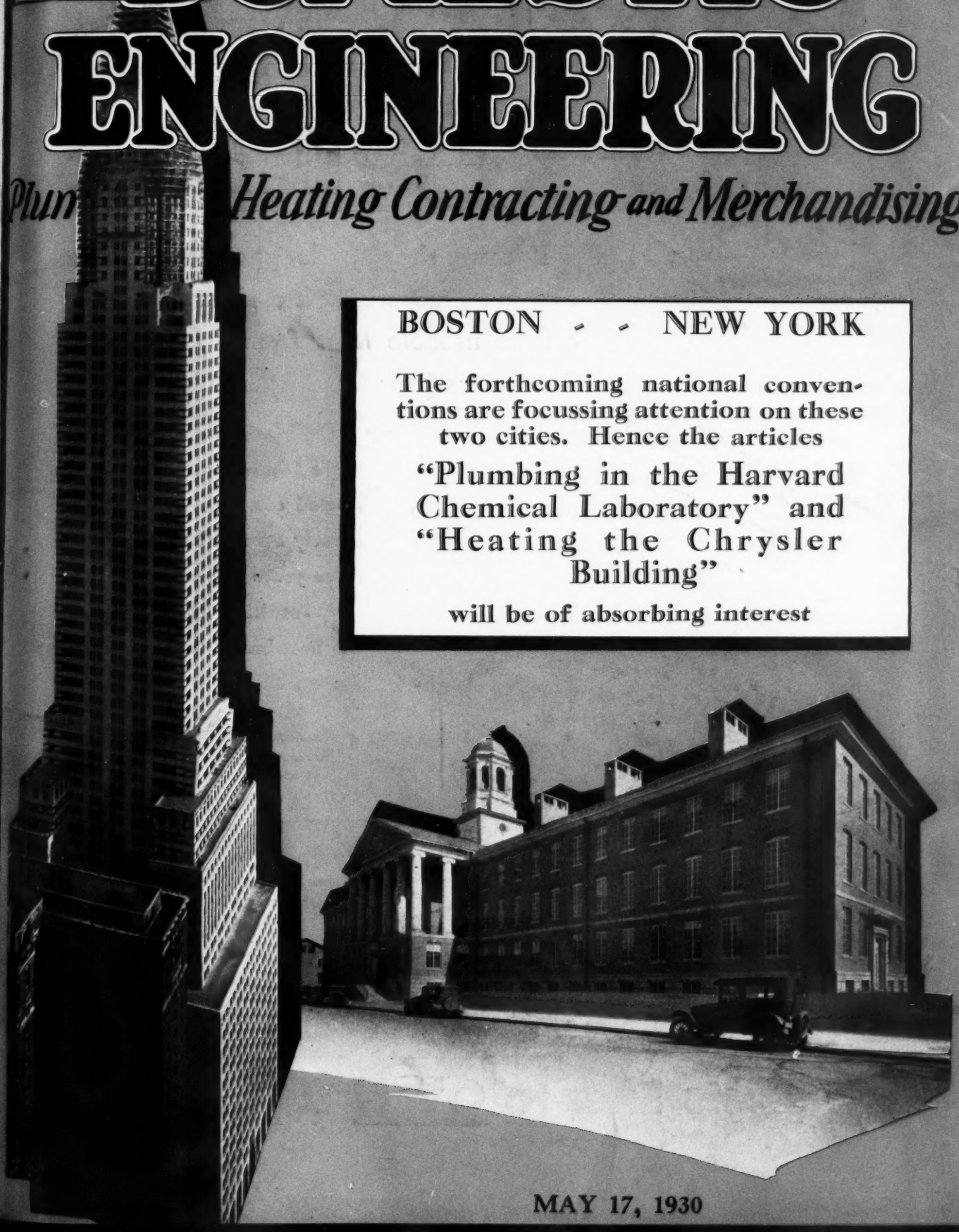
Plum Heating Contracting and Merchandising

BOSTON - - NEW YORK

The forthcoming national conventions are focussing attention on these two cities. Hence the articles

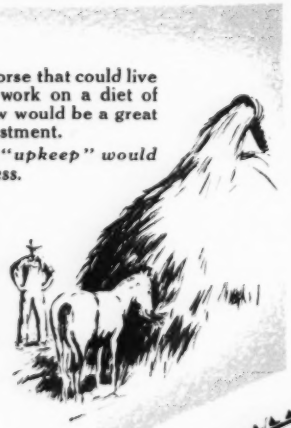
"Plumbing in the Harvard Chemical Laboratory" and "Heating the Chrysler Building"

will be of absorbing interest



MAY 17, 1930

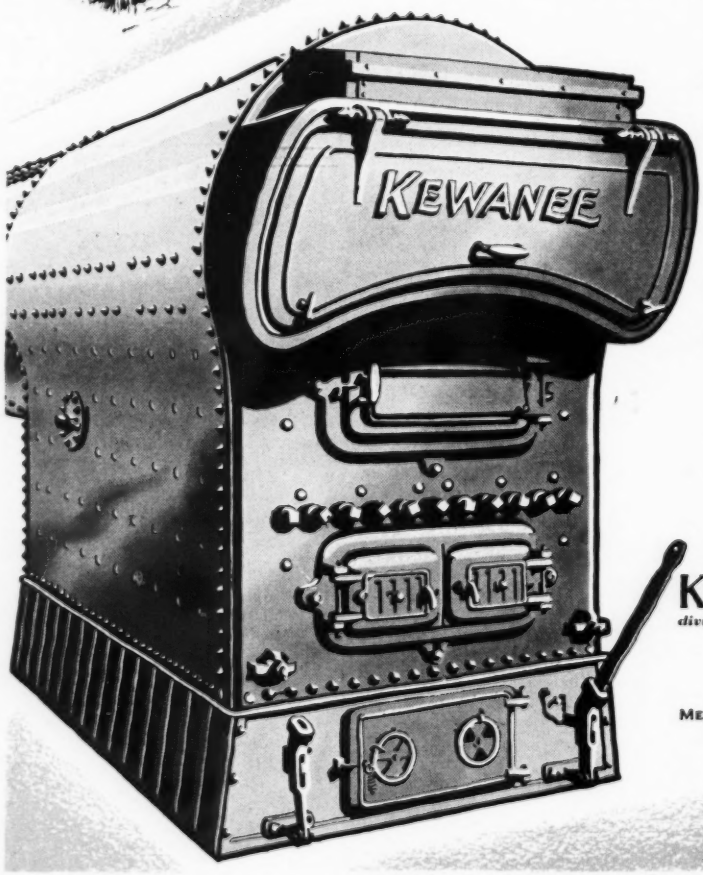
KEWANEE STEEL BOILERS



A horse that could live and work on a diet of straw would be a great investment.
His "upkeep" would be less.

Because they are designed to burn the cheaper grades of soft coal, *and extract all the useable heat from it,* Kewanee Smokeless (Down-Draft) Boilers greatly reduce "up-keep" costs.

On top of that their steel riveted construction is sufficiently strong to add many *extra years of service* to their life—making them in fact the best boiler investment in the world.

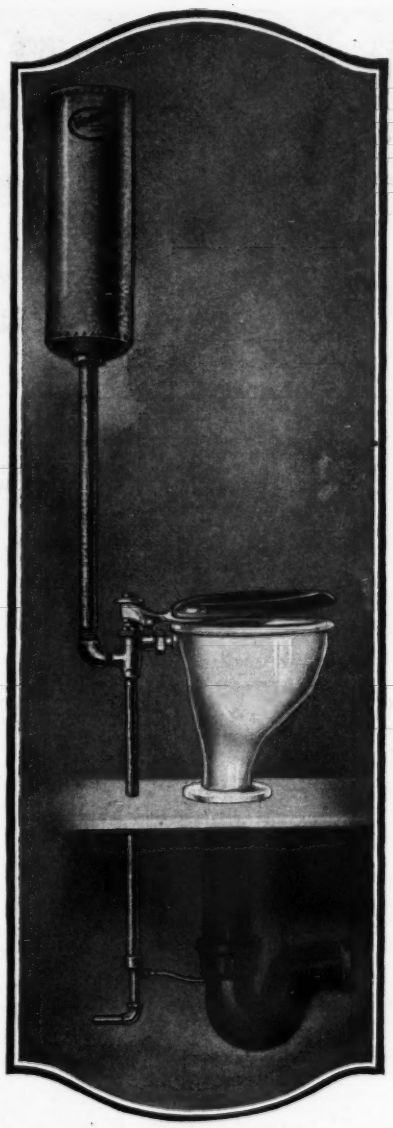


Now there's a Kewanee Steel Boiler to heat every size building. Ask about Type "R" for Homes and Smaller Buildings.

KEWANEE BOILER CORPORATION
division of American Radiator & Standard Sanitary Corporation
KEWANEE, ILLINOIS
Branches in Principal Cities

MEMBER OF STEEL HEATING BOILER INSTITUTE

It Costs Less to OWN a KEWANEE



Number One Vogel Frost-Proof Closet.
Simple in operation. Sturdy in construction. Half million in operation.

SUGGEST THIS CONVENIENCE TO YOUR CUSTOMERS

. . . an extra closet outside the house . . . in the garage for instance . . .

THE convenience of a VOGEL Frost-Proof Closet, installed outside the house, more than offsets its modest cost.

Such a closet is convenient for men working around the place. Being a VOGEL Frost-Proof Outfit it never requires attention, and there is no possibility of freezing.

Folders, for your customers, telling of the convenience of an extra closet outside will be supplied in quantities. These will help you make this extra sale — the extra profit — and give you the extra job of installing the closet.

See inside back page for VOGEL SELFLUSH advertisement

JOSEPH A. VOGEL COMPANY
Wilmington, Del. St. Louis, Mo.

VOGEL PATENTED *Frost-Proof* Products

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Established 1889

Vol. 131, No. 4 Whole No. 1917 May 17, 1930

More Than 20,000 Copies of This Issue Printed and Distributed

Published Fortnightly by
ENGINEERING PUBLICATIONS, INC.
1900 Prairie Avenue, Chicago

F. P. KEENEY,
President and Treasurer
E. DE FOREST WINSLOW,
Vice President
O. T. CARSON,
Secretary

Address all Correspondence to Chicago Office

NEW YORK OFFICE—
Rooms 1706-1707, 110 East 42nd St.
PHILADELPHIA OFFICE—
Room 1507, Finance Bldg.
PITTSBURGH OFFICE—
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TERMS OF SUBSCRIPTION
Anywhere in the World, $2.00 per year.
Current copies, 20c each. Back numbers, 40c each.

Entered as Second Class Matter on January 19, 1929, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879.

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WOLVERINE

DEPENDABLE TRAPS

Making it easier for the Master Plumber

The "pre-fitting before boxing" of each Wolverine Trap is another of the many features that make Wolverine Brass Products preferred by Master Plumbers.

Positive fitting of each part of a Wolverine Trap assures rapid, economical installations.

The years of experience of Wolverine engineers in mechanics and sanitation result in a wide range of styles and patterns of traps.

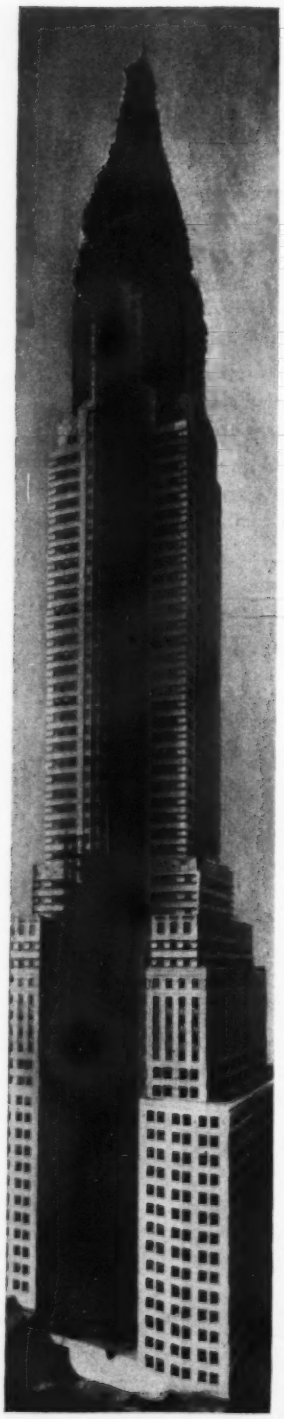
The quality of material and workmanship of Wolverine Traps upholds the work of the Master Plumber and assures him satisfied customers.

WOLVERINE BRASS WORKS
GRAND RAPIDS (WB) MICHIGAN

We sell the Retail Plumbing Trade Exclusively

Each "WB" Trap is pre-fitted... before boxing to insure easy installation...

Between Ourselves



JACK the Giant Killer and his beanstalk had nothing on the world's present tallest structure for, although Jack's beanstalk may have been higher, it is safe to say it had no plumbing and heating facilities. This modern marvel, however, has a great deal of plumbing and heating equipment; so much so that problems of installation and operation were met with by the score. For, it is admitted, supplying heat and water to 75 floors, one above the other, is not a simple task, but an engineering job of high order. The Chrysler building in New York City, therefore, lends itself well as an example of the engineer's problems in tall buildings, by Louis T. M. Ralston, in this issue.

Selected from This Issue

"THE setting up of machinery to facilitate financing of repairs, remodeling and general modernization operations, aims at one of the weakest spots in the construction field, and at one of the outstanding causes of periodical unstabilized conditions in the entire economic structure of the country . . . "—FENTON B. TURCK, JR.

"Those who have kept pace with the advancement of the science of plumbing in recent years are well aware of the fact that one of the most significant changes is in the greatly increased use of the 3-inch soil stack for residences and other dwellings."—R. M. STARBUCK, JR.

"The heating plant was completed. The oil burners were installed. Everything went along fine until a test was conducted."—W. A. WEBSTER.

WITH the increasing demand for special apparatus in schools, hospitals and industrial buildings has come a series of new problems for the plumbing contractor. In this regard the completion of two of the finest buildings in the country designed and equipped for the study of chemistry, should be of interest to all members of the plumbing industry, and especially the contractor and engineer. These two buildings are located on the Harvard University campus. For four years before actual construction began, architects and engineers were engaged in tests and experiments in an effort to determine the most satisfactory equipment for laboratory use. The results of this study and experiment are presented on page 47.

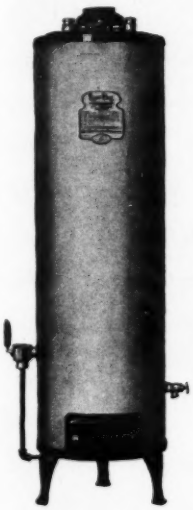
Your Editor

"I WAS much impressed with your bookkeeping system, because of its simplicity and practicality, and because it can be used by any one with ordinary intelligence, and the added fact that it will enable the master plumber to ascertain just how his business is progressing."—Letter written by E. B. Moore, field secretary of the New Jersey Master Plumbers Association, to William Morris, author of articles on bookkeeping in DOMESTIC ENGINEERING.

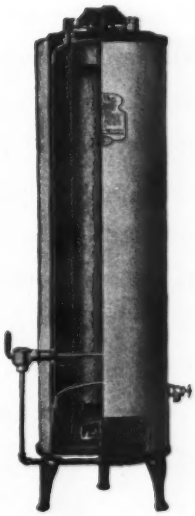
The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe

SPEED!

What Has Speed Got to Do With Automatic Water Heaters?



PLENTY!



If an automatic water heater is to handle a job satisfactorily at all times, it must combine fast heating with an adequate storage capacity.

One of the factors that has made the Ever-Hot Heater a desirable unit and one that furnishes hot water to meet every demand is its fast recovery. It enables the EverHot to handle a bigger job or the same job much better than any other make of water heater of the same size with a smaller burner.

And, in the EverHot, thermal efficiency is not sacrificed to the cause of fast heating. EverHot efficiency is exceptionally high.

A test of various heaters, all nationally known, shows the following results on their ability to heat the water. The figures are all based on the same efficiency, somewhat lower than the actual efficiency of the EverHot, so in the final analysis EverHot shows up to even better advantage.

Heater	Storage Capacity	Burner Capacity per Hour	Heating Capacity per Hour 100 deg. Rise
A	20 Gal.	8,500 b.t.u.	6.6 Gal.
B	24	15,000 b.t.u.	11.7
C	20	20,000 b.t.u.	15.6
D	20	20,000 b.t.u.	15.6
E	20	25,000 b.t.u.	19.4
EverHot Junior	20	30,000 b.t.u.	23.3

Give your customers and clients a heater that will do the work. Tell 'em — and sell 'em EverHot.

EverHot Heater Company

5211 WESSON AVE. DETROIT, MICHIGAN

Mail the coupon for PROFIT

What a line to *sell*. Cabinet heaters of the circulating type for city or country homes, garages, summer camps, stores. A furnace of the self-contained type, including heating plant of scientific design, automatic oil-burner, humidifier, forced air-blower. Automatic water-heater for city or country homes apartments. Oil-burning cook stoves, some in enamel, others for camps, small roadside stands and summer cottages. Here is a line for winter and summer, city and country, complete—a business in itself.

All of these products are built on the famous Piatt principle of automatic oil heat, proved on battleships; safe, reliable, efficient, with no weights or springs or complicated parts; noiseless in action. Dealers everywhere are building profits on the Piatt line of oil-heating appliances. Send the coupon below for complete facts. Let us send you the Piatt Proposition of Profit and get started in this new, fast-selling line of business. Mail the coupon now.

MOTOR WHEEL CORPORATION
Heater Division
LANSING MICHIGAN

PIATT
OIL-BURNING APPLIANCES

Motor Wheel Corporation,
Heater Division, Dept. 103,
LANSING, MICHIGAN

Send me at once, full information and profit-building plan on the Piatt Appliances. I am not obligating myself but will study the details carefully.

Name .....
(Please print or typewrite)
Street .....
City ..... *State* .....
My Business .....

THE MAYFLOWER

. . . . point by point superiority which sells against any competition

Designing an electric refrigerator for marketing solely thru the trade, Trupar realized the necessity of producing a better refrigerator in every respect — yet priced considerably lower—in order to meet strong competition. Into the MAYFLOWER is built a point by point superiority which is so apparent that it can be easily sold by the man who has not had the advantage of an electric refrigeration sales school.

This is why you can sell the MAYFLOWER against any competition. It is better looking. This model strikes a new note in cabinet beauty . . . Size for size, it has more net food storage space . . . It is factory installed. Comes to you a complete unit ready for instant use . . . It is custom built and factory tested to insure you against any servicing . . . A sound proof compartment houses the compressor making it absolutely silent . . . The cabinet has three-inch insulation instead of two . . . The MAYFLOWER is more economical to operate . . . It has a temperature control and space for 56 large ice cubes . . . And finally, it is priced so low that its value is incomparable.

Get all the facts about the MAYFLOWER and other Trupar models, and let us explain our liberal dealer proposition. The coupon is for your convenience. Trupar Mfg. Co., Dayton, Ohio.

TRUPAR

"Performance as promised"

TRUPAR MFG. CO. DAYTON, OHIO

Gentlemen:

Rush me particulars of dealer proposition on the Mayflower and other Trupar Models.

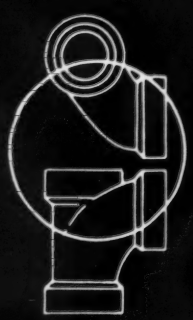
Name .....

St. and No. .....

City and State .....

"NIAGARA"

WASTE AND VENT FITTINGS



The branch wastes are vented at the crown preventing self-siphonage of the fixture traps.

Patent Pending

SANI-TEED PLUMBING PRODUCTS

The absolute elimination of the possibility of self-siphonge of the fixture traps is assured when "Niagara" Fittings are on the waste line, because of the fact that the branch wastes are amply vented.

Investigate the four other big "Niagara" points of superiority. We will be glad to furnish you with complete data and provide you with many practical specimen layouts.

J. A. ZURN MFG. CO.

ERIE, PENNA.

Sales Offices in the following Cities:

Boston New York Philadelphia Pittsburgh
Toledo Chattanooga Chicago
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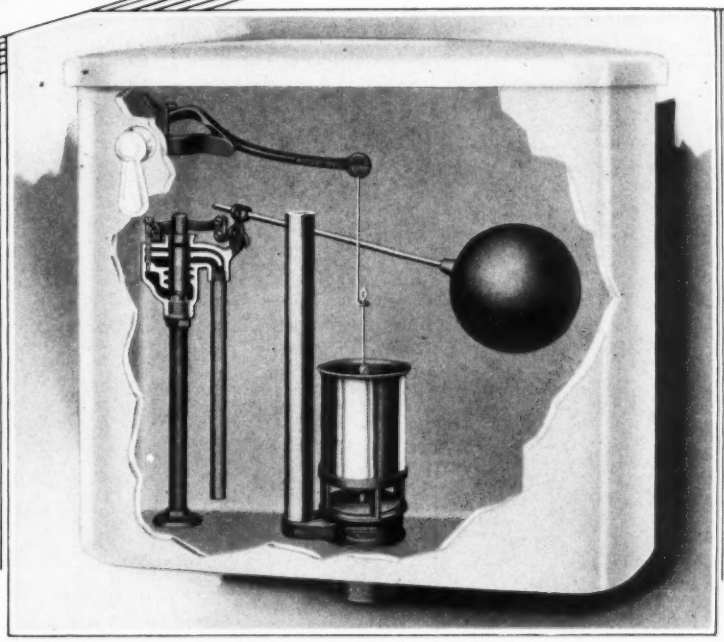
QUIET and ENDURING

SAFEGUARDED AGAINST ALKALINE WATERS



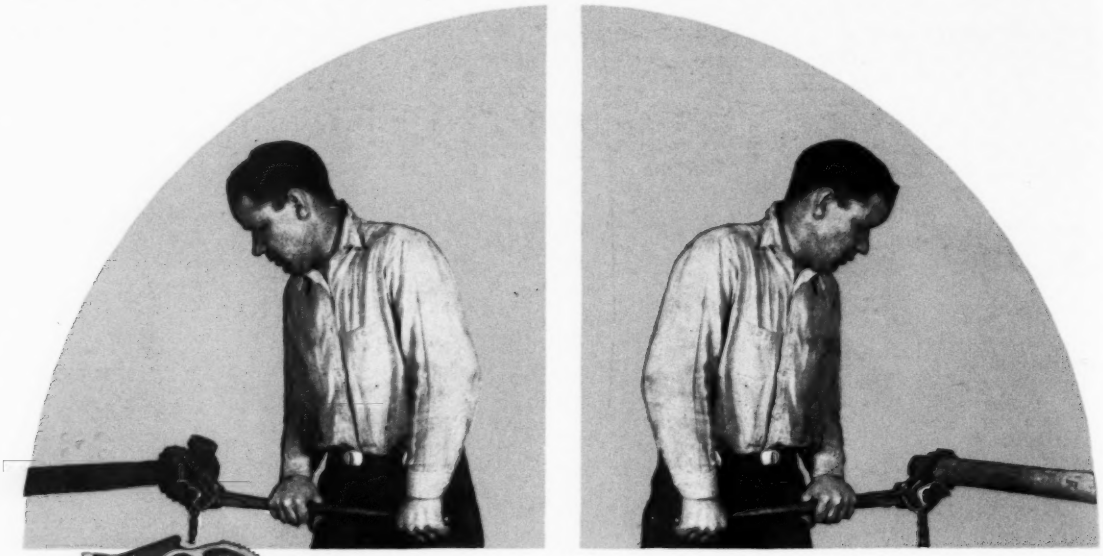
If your problem is in a section where akaline waters prevail—Curtin has solved it for you. Cast bronze, seamless drawn copper, seats and plungers ***chromium plated***—think of it—protection for years. No leaks, no hisses, just silent economical service.

Install Curtin Tank Fittings under severest conditions. They last a lifetime.

Full specifications in Domestic Engineering Plumbing and Heating Catalog.

A. F. CURTIN VALVE COMPANY
Medford Massachusetts

install CURTIN TANK NOISELESS FITTINGS



7 Sizes from 1/8 to 12"
PIPE and FITTINGS

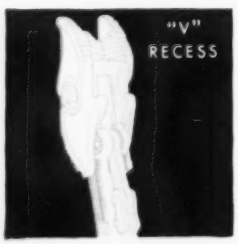
TWO IN ONE

The double purpose back of Williams' NEW "Vulcan Superior" Tongs—ONE tool for BOTH fittings and pipe—means real economy and convenience. Two tools—one for fittings and one for pipe—are unnecessary. "Vulcan Superior" Tongs are always ready just "as is" for either class of work.

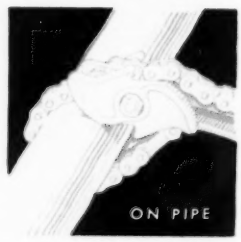
The "V" recess in the jaws, combined with general design, give "Vulcan Superior" a greater number of grips, or "bites", on both fittings and pipe than other tongs.

The only chain tongs with reversible pipe-and-fittings jaws for double life. Proof-tested and CERTIFIED chain. Fully guaranteed.

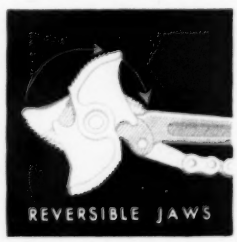
Instant "bite" on fittings. No change in tongs required.



"V" Recess in jaws assures a quick and firm grip on fittings.



Immediate grip on pipe without change in tongs. No lost time.



When teeth wear, simply turn the jaws end for end.

J. H. WILLIAMS & CO.
"The Wrench People"
New York BUFFALO Chicago

WILLIAMS
SUPERIOR DROP FORGED TOOLS
VULCAN
SUPERIOR
PIPE AND FITTINGS TONGS

THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

A Letter from Harry G. Nye

May 17, 1930.

To the Master Plumbers of the U. S. A.

Dear Friends:

Write the date on the wall with chalk, red if it's to be had! —burn it into your wife's best tablecloth, so she'll remind you of it!—carve it into your desk!—have it tattooed on your chest, where you'll see it every month!—tell ten thousand taxis to call for you a few days before, that you've got to make a train!— anyway, see to it that you don't forget that the National Association of Master Plumbers of the United States, Inc., will meet and expose at the meeting and exposition in Boston June 23, 24, 25 and 26!

The exposition will open June 23 and end June 26. The meeting will start June 24—when it will end I don't know. But I know I am going to be there. I wouldn't miss it to go to a saxaphone player's funeral, much as I would enjoy that. And, if I wouldn't miss it, an ordinary, ornery pipe-tool manufacturer, who is lucky to be allowed to come at all, what about a plumber?

You know all about Boston. The streets run zigzag, making it an ideal place to hold a convention. It was the cradle of liberty in 1775, and it's far from being the deathbed of liberty now. There are many historic spots in and around Boston, but none on it whatever. You will probably see Paul Revere's horse. In fact, there is no telling what you may see if you are not careful.

Patents Pending

"THE LIGHTWEIGHT CHAMPION"
POWER PIPE THREADING MACHINE
Threads—Cuts Off and Reams
CAPACITY ½ to 2 INCHES

And you will see the Nye exhibit. It will be right next to the convention. Step over and step in. There will be other exhibits, of course, but this will be the big show. Convention and exposition will all be under one tent. No chasing across town and getting lost, like some of us have in the past. And the aisles will be full of plumbers, not undertakers and shoe-clerks who just dropped in because the show is free.

The old song went: "Come, come, come, come to the church in the vale." The new song goes: "Come, come, come, come to the convention and exposition in Boston June 23, 24, 25 and 26!" You'll learn a lot and earn a lot at Boston, more than you will ever earn or learn by just sticking to the old shop.

See you in Boston,

Harry G. Nye

OTHERWISE KNOWN AS
THE NYE TOOL & MACHINE WORKS
4120-30 Fullerton Avenue Chicago, Ill.

Copyright 1930 by Harry G. Nye
All rights reserved

THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

WISECO PRODUCTS

WISECO

COMBINATION LAVATORY SUPPLY AND WASTE FIXTURE with Pop Waste

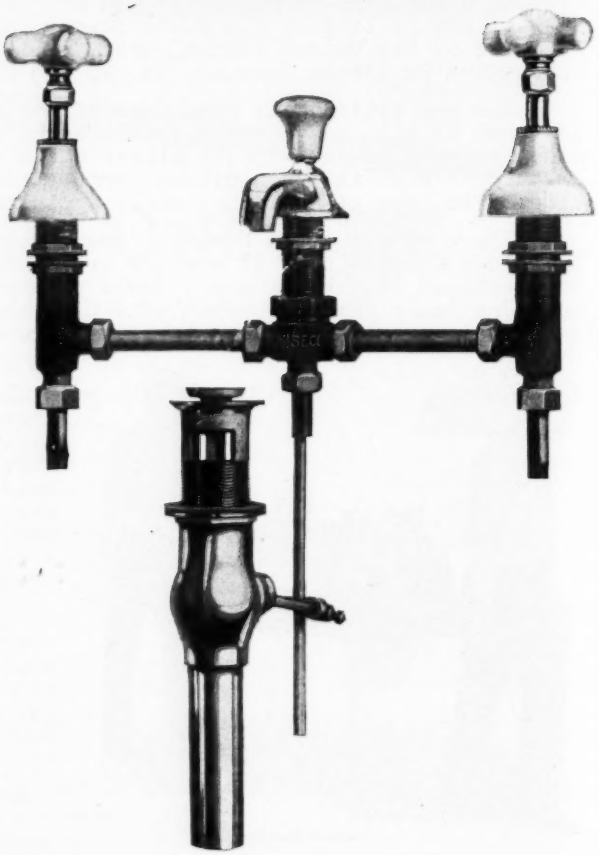
Here's a real leader for you.

It may be furnished either in China or All Metal Trim. Nickel Polished or Chromium Finish.

A real quality product that still sells at a competitive price.

Easy to install.

Ask your jobber.



WISECO TRADE MARK INC.

THE STANDARD OF QUALITY SINCE 1877

J. B. WISE, INC.

WATERTOWN NEW YORK

NEW YORK · PHILADELPHIA · ATLANTA · CHICAGO · LOS ANGELES · SEATTLE

Chicago Civic Opera Building, another fine modern building using Youngstown steel pipe.

Architects—
GRAHAM, ANDERSON, PROBST & WHITE

General Contractor—
JOHN GRIFFITH & SONS

Heating Contractor—
KINZIE ENGINEERING CO.

PIPE and PROFITS

THE PIPE that a contractor uses on his plumbing and heating jobs is a big factor in determining his net profits. Naturally, pipe that is hard to cut, hard to thread, or which is not absolutely uniform in size slows down the installation and increases the cost proportionately.

With a pipe like Youngstown steel pipe, the installation is much easier and faster, and consequently shows a better margin of profit at the end of the job. Youngstown pipe is uniform in every length; it has clean, deep-cut threads; and it works with ease and speed—cutting down lost motion in its installation. And in addition to these features, it insures a *permanent* installation—pleasing architects, engineers and owners alike, helping to build up a steady repeat business.

Try Youngstown steel pipe on your next job and see how easy it is to install.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"

General Offices—YOUNGSTOWN, OHIO

DISTRICT SALES OFFICES

ATLANTA—Healey Bldg.
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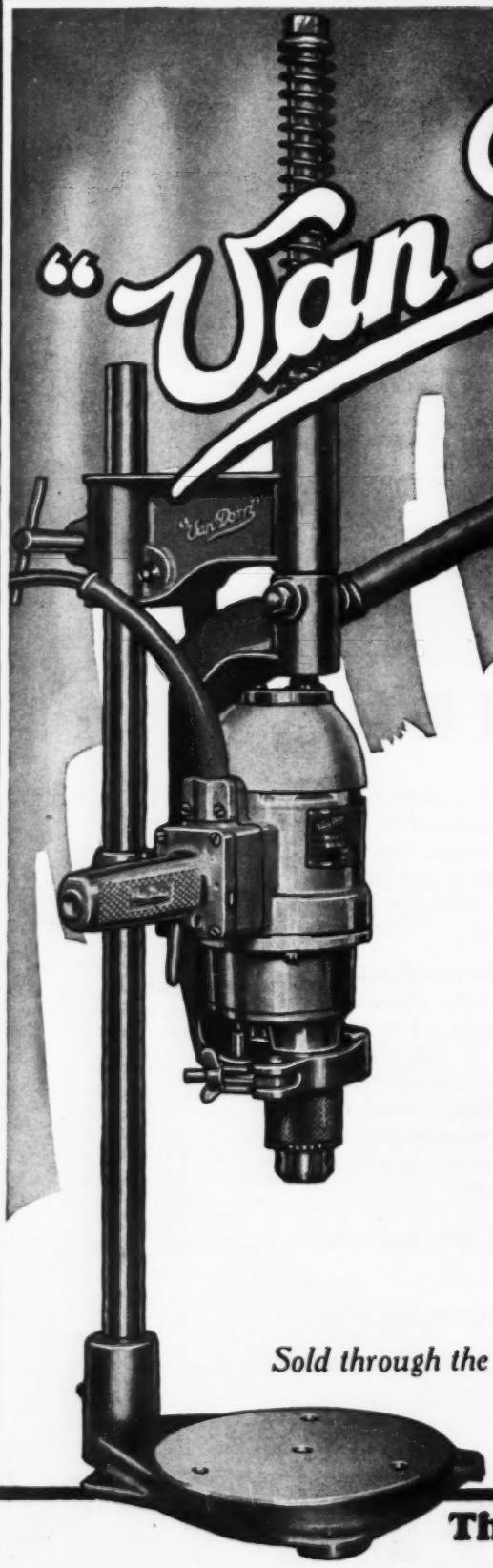
BUFFALO—Liberty Bank Bldg.
CHICAGO—Conway Bldg.
CINCINNATI—Union Trust Bldg.
CLEVELAND—Term'l Tower Bldg.
DALLAS—Magnolia Bldg.
DENVER—Continental Oil Bldg.
DETROIT—Fisher Bldg.
KANSAS CITY, MO.—Commerce Bldg.
MEMPHIS—P. O. Box 462
MINNEAPOLIS—Andrus Bldg.
NEW ORLEANS—Hibernia Bldg.
NEW YORK—30 Church St.
PITTSBURGH—Oliver Bldg.
PHILADELPHIA—Franklin Trust Bldg.
SAN FRANCISCO—55 New Montgomery St.
SEATTLE—Central Bldg.
ST. LOUIS—525 Louderman Building
YOUNGSTOWN—Stambaugh Bldg.
LONDON REPRESENTATIVE—The Youngstown Steel Products Co., Dashwood House, Old Broad St. London, E. C. England

YOUNGSTOWN

GALVANIZED SHEETS PROTECT ∴ ∴ ∴ ∴ ∴ SAVE WITH STEEL



"Van Dorn"

BENCH DRILL

THESE powerful Van Dorn Electric Drills are mounted in bench stands and can be obtained at such a relatively low price that it is possible to place a Bench Drill at various points in the shop.

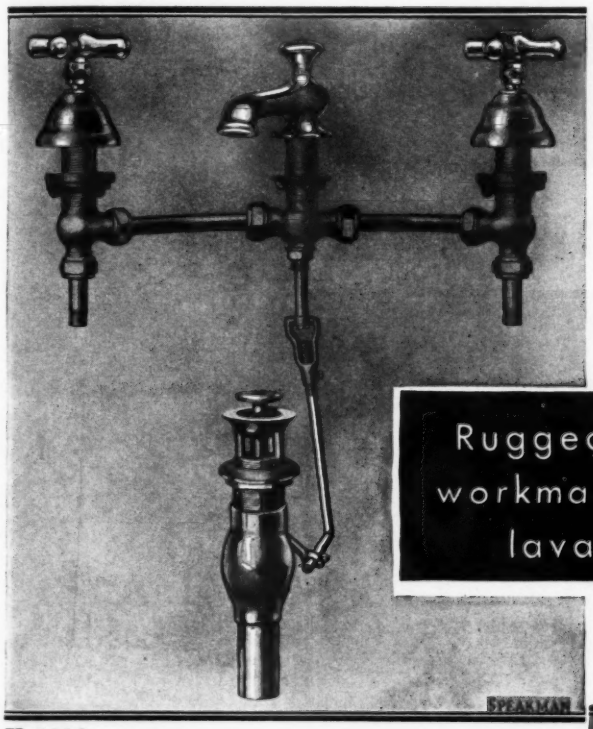
This has proven to be practical and time saving, especially in larger shops, as it eliminates the necessity of mechanics losing time walking to other parts of the shop to do a drilling job.

The unit increases the utility of the drill, as it can be quickly and easily attached to or removed from the stand to take care of any drilling operations not requiring the action of a drill press.

The drill is equipped with a powerful Van Dorn-built, universal motor which will operate on both direct and alternating current.

Sold through the Leading Supply Houses

The Van Dorn Electric Tool Co.
Cleveland, Ohio

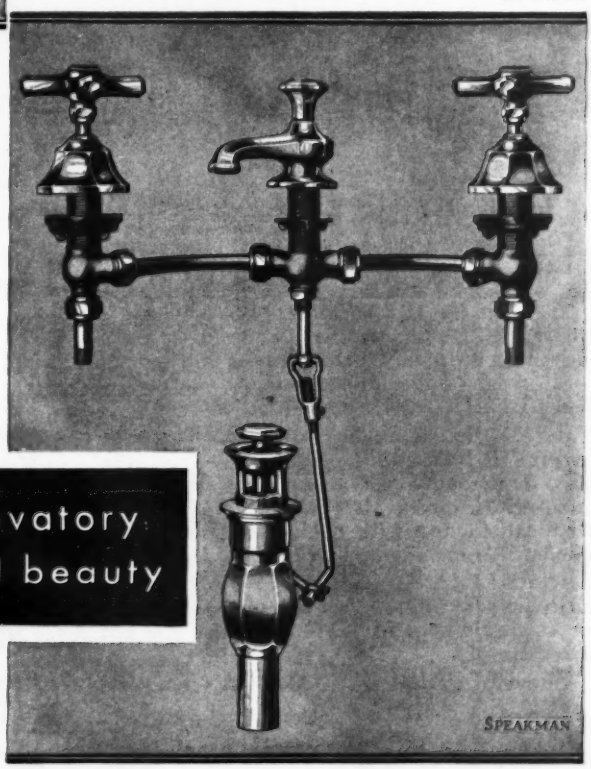


K-5010

Ruggedness and fine workmanship mark this lavatory fixture

THIS Speakman Metaline Unit-Acto Lavatory Fixture has metal escutcheons and four-arm metal handles with black enamel indexes. It is a popular installation for residences, hotels and office buildings. Raised nozzle. Valves with ¼ inch threaded tails, renewable seats, swivel discs and encased washers. Acto Pop-up Waste with 1¼ inch diameter tail.

K-5018



A finely made lavatory fixture of unusual beauty

THE Speakman Artline Unit-Acto Lavatory Fixture harmonizes with lavatories of any color or finish. Design is rugged yet graceful. Finished in Speakman chromium plate of unusual lustre or gold plate. Raised nozzle. Valves with ¼ inch threaded tails, renewable seats, swivel discs and encased washers. Acto Pop-up Waste with 1¼ inch diameter tail.

SPEAKMAN
SHOWERS & FIXTURES

EVIDENCE OF LEADERSHIP

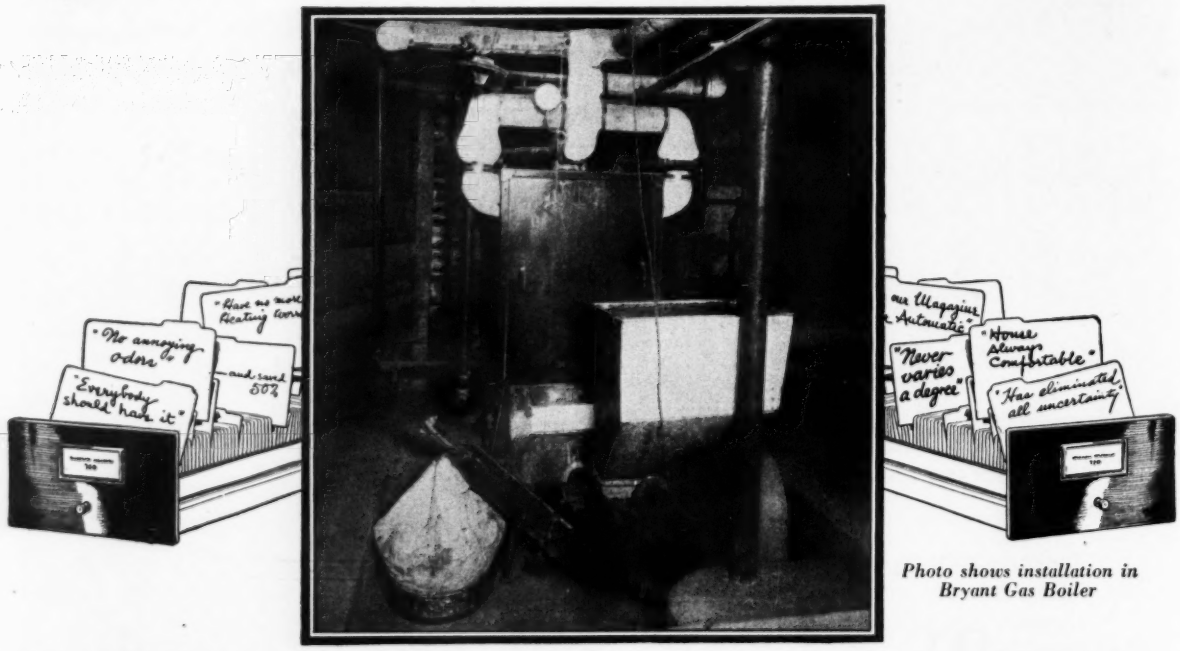


Photo shows installation in Bryant Gas Boiler

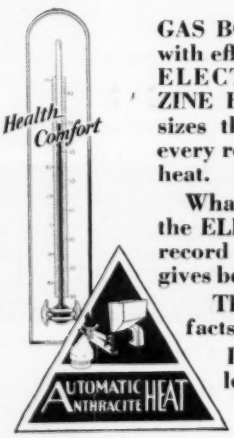
IN THE DOMESTIC HEATING FIELD

MODERNIZE the heating plant—give your customers uniform, healthful heat at all times — with labor-saving convenience—safety — dependability—cleanliness—and economy.

Here is the one modern automatic device— burning Pennsylvania Anthracite — the one safe, dependable and economical household fuel—which gives *all your customers* complete satisfaction with the utmost obtainable efficiency—*and savings up to 80%.*

The ELECTRIC FURNACE-MAN can be easily installed in any hot water, vapor, steam or warm air system. It is ideal also for hot water supply.

The ELECTRIC FURNACE-MAN converts GAS BOILERS and OIL BURNER BOILERS with efficiency and economy of operation. The ELECTRIC FURNACE-MAN makes MAGAZINE BOILERS automatic. In homes of all sizes the ELECTRIC FURNACE-MAN meets every requirement of modern automatic home heat.



Whatever the present method of heating, the ELECTRIC FURNACE-MAN proves by its record in more than 10,000 homes that it gives better heating satisfaction at a lower cost.

This is the evidence of leadership. Service facts—not theories.

Investigate. See a demonstration at local dealers.

The Electric Furnace-Man

(Patented Automatic Coal Burner)

ENDORSED BY ANTHRACITE OPERATORS CONFERENCE — A BILLION DOLLAR INDUSTRY
AUTHORIZED DISTRIBUTORS AND DEALERS IN OVER 325 CITIES

DOMESTIC STOKER COMPANY, 7 DEY STREET, NEW YORK

"DESANCO" Double Ground Joint Compression Coupling is one of the most important time savers in the plumbing trade

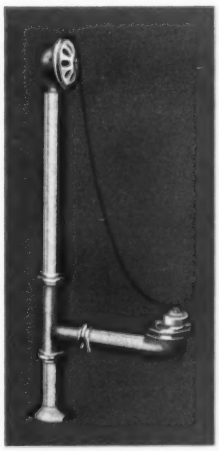
MODERN METHODS

Raise Quality of Tubular Brass Goods

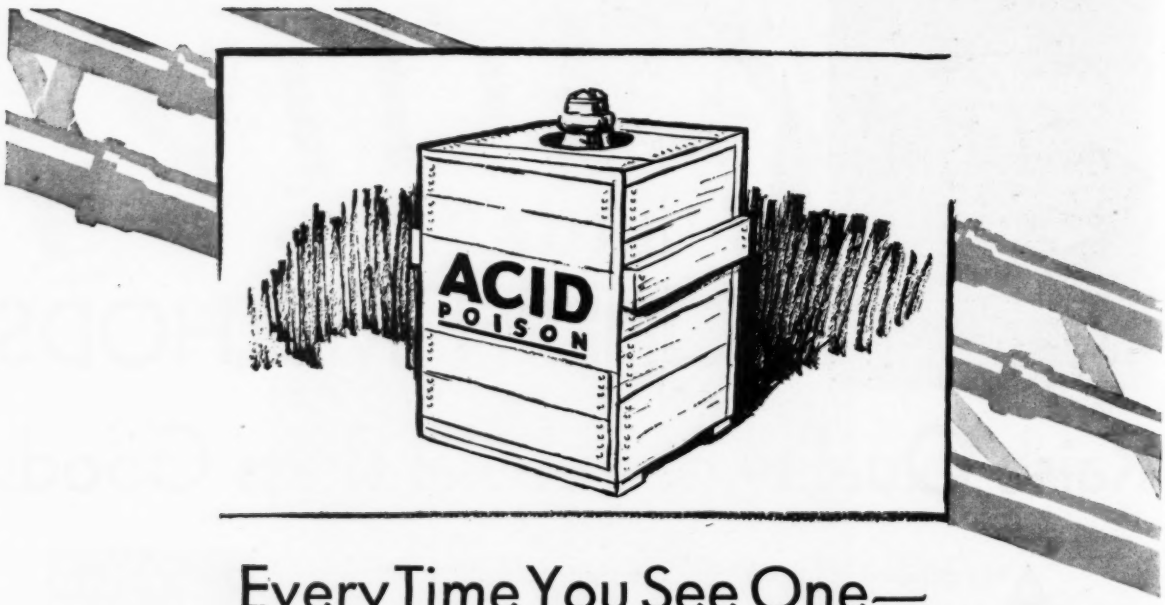
ANY product sold in American markets that has for more than three decades held its position as one of the recognized leaders in its field must be a product which has been under constant development and refinement—especially is this true in the metal working field where yesterday's achievements are invariably today's commonplace standards.

"CLEAN-SWEEP" wastes and over-flows and "DESANCO" traps have maintained their position in this march of progress because every improvement in the practice of non-ferrous metal working has been incorporated in their constant development.

Discoveries in the chemistry and metallurgy of brass, improvements in brass foundry practice, developments in brass working machine design, new methods of heat treatment to eliminate internal strains in the metal structure and the betterment in design of the products themselves—these have all contributed to the present status of utility, appearance and dependability of products manufactured by



DETROIT SANITARY MANUFACTURING COMPANY
DIVISION OF
DETROIT BRASS & MALLEABLE WORKS
DETROIT * * * * MICHIGAN



Every Time You See One—

. . . . you're passing a place to sell Duriron Acid-proof Drain Pipe.

There's no more labor required than to install cast iron soil pipe. But what a difference in value to the customer and in PROFIT to yourself.

Watch for the men who use acid—the electro-platers, battery stations, photo-engravers, school and hospital laboratories! They need corrosion-proof drain lines. They'll want Duriron. If your local jobber hasn't a Duriron stock, write or wire us and we'll see that you get what you need. Address: The Duriron Company, Inc., Dayton, Ohio.

DURIRON ACID PROOF DRAIN-PIPE

23

RIGHT THROUGH

YOU CAN'T LOCK IT ON A PIPE--POWERFUL I-BEAM HANDLE WITH COMFORTABLE GRIP--HOOK JAWS YOU CAN'T BEND OR BREAK---NUT ALWAYS RIDES FREE IN OPEN HOUSING

AS GOOD AS THE HOUSING

UNCONDITIONAL GUARANTEE
If this Housing ever Breaks or Distorts we will replace it Free
THE RIDGE TOOL CO. ELYRIA, O.
TRADE RIDGID MARK PAT. PEND'G 14
If this Housing ever Breaks or Distorts we will replace it Free

THE RIDGID is a pipe wrench that gives you more than other wrenches give and THEN SOME!

It's a tool you don't have to go easy with. Use it with utmost confidence on the most stubborn pipe. For every part of a RIDGID is as powerfully built as the housing we guarantee can't break or distort.

The I-Beam handle with the hang-up hole has exceptional strength. The jaws grip and let go instantly. They won't slip or lock on pipe. The heel jaw of special steel wears remarkably well. So does the hook jaw with the pipe scale. And you'll find the adjusting nut always free riding in open housing even after much and severe use.

More than a million in use prove that only another RIDGID is as good as a RIDGID. Sizes 6 in.-60 in.

WHEN you ask your jobber about RIDGID Wrenches, ask also about the RIDGID Pipe Cutter with the new "blue" blade, RIDGID Vises with new jaws that won't mar nickel pipe, and the RIDGID Super-Six with compound leverage.

See RIDGID pipe tools at The National Convention, Booths 132 and 133 at Boston.

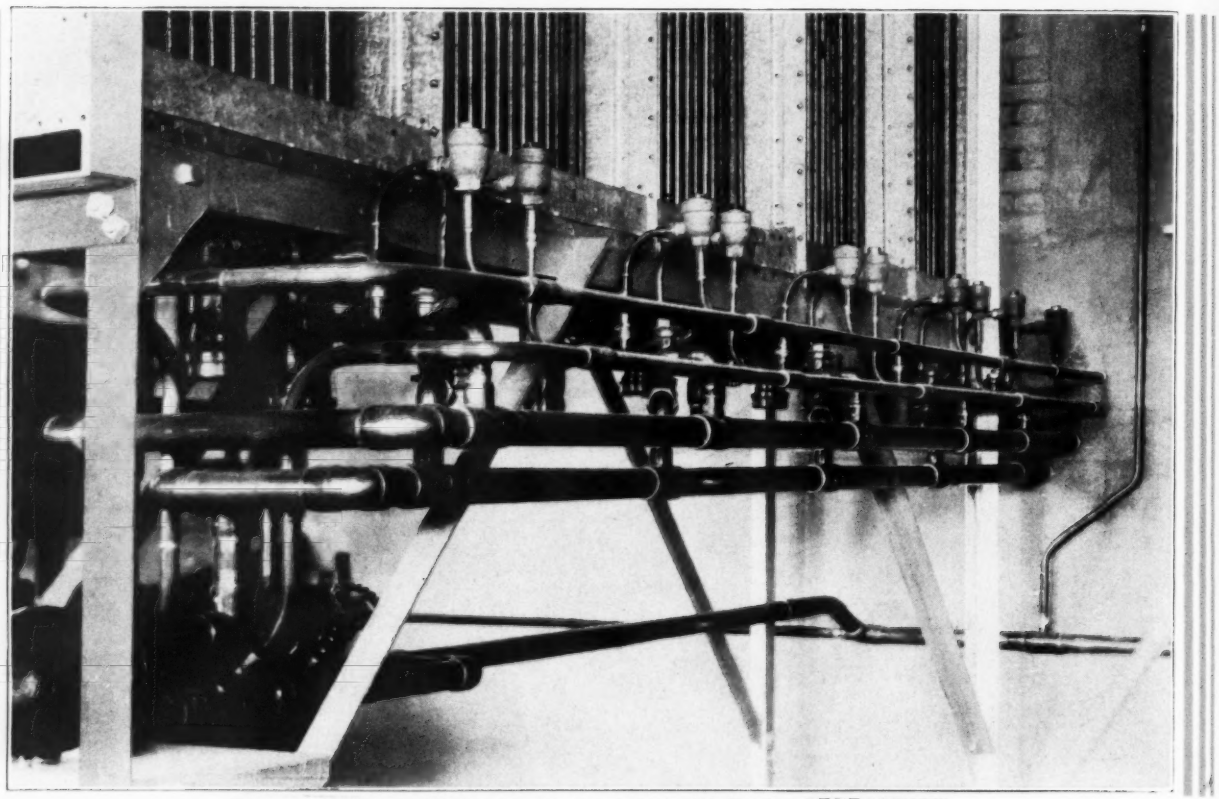
Canadian Distributor:
W. H. Cunningham & Hill, Ltd.
269 W. Richmond St., Toronto 2, Canada

THE RIDGE TOOL COMPANY, Dept. D. E., ELYRIA, OHIO

RIDGID
PIPE WRENCHES VISES AND PIPE CUTTERS
WRENCHES

NEAT, HANDSOME, COMPACT

MUELLER STREAMLINE COPPER WATER TUBE (99.9% pure copper) AND FITTINGS IS THE IDEAL INSTALLATION FOR PLUMBING, HEATING AND MANY INDUSTRIAL USES



Heater coils for ventilating system, connected with Mueller STREAMLINE Copper Water Tube and Fittings. Note the neat compact appearance of the job

AN installation of Mueller **STREAMLINE** Copper Water Tube and Fittings has no bulging, ugly fittings to mar its neat appearance.

These fittings, though enormously strong, are very little larger than the tube itself and, of course, require no wrench grip. This quality, together with the fact that it radiates very little heat, permits of its ready installations in confined working space, or close up to walls or ceiling.

Be sure to see our exhibit at the Convention of the National Association of Master Plumbers in Boston, June 24 to 26th. Booth No. 12.

MUELLER STREAMLINE COPPER WATER TUBE AND FITTINGS COSTS CONSIDERABLY LESS THAN ANY OTHER FITTING FOR THE SAME PURPOSE.

A Mueller **STREAMLINE** Copper Water Tube and Fittings installation cannot rust—it is threadless and therefore does not require a heavy wall.

THIN WALLED COPPER TUBE HAS BEEN USED SUCCESSFULLY OVER A PERIOD OF MANY YEARS FOR WATER HEATER COILS. CAN YOU THINK OF ANY TEST MORE SEVERE THAN THIS?

The new **STREAMLINE** fitting was invented by a company who, for years, have had an intimate knowledge of the plumbing industry and its problems. It is essentially a mechanic's fitting and requires the plumber's skill to connect.

Our new catalogue giving complete information on Mueller STREAMLINE Copper Water Tube and Fittings is now ready. Write for your copy.

Mueller Brass Co.

Port Huron, Mich.

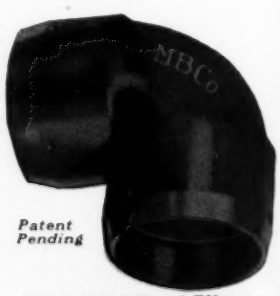
Three Generations of Brass Making

Patent Pending

STREAMLINE Coupling Copper to Copper

Patent Pending

STREAMLINE Tee Copper to Copper to Copper



Patent Pending

STREAMLINE 90° Elbow Copper to Copper

TIME-O-STAT'S FANSWITCH

brings you Sales and Customer Satisfaction!

The No. 184 Fanswitch—note the long thermal tube which goes right into the heat zone.

YOU make extra profit — and assure customer satisfaction — when you equip every furnace fan you install with the No. 184 Fanswitch. It sells quickly, because it automatically controls the fan's operation *efficiently.*

The 184 Fanswitch regulates fan operation to provide even, economical heat — to prevent the circulation of cold air!

The No. 184 Fanswitch operates from a bi-metallic spiral and Heavy Duty Con-Tac-Tor Mercury Switch, mounted in a stamped steel case. Because of its simple design and sturdy construction, it operates dependably — without attention — and with unusually long life. It is easy to install. The mounting flange — exclusively Time-O-Stat — insures correct installation on any type furnace!

This Fanswitch is easily set for any desired temperature by means of a pointer on a graduated scale on top of the instrument. It operates over a wide range. This instrument also provides an exclusive outside adjustment!

Send the attached coupon for detailed information.

TIME-O-STAT AUTOMATIC CONTROLS

TIME-O-STAT CONTROLS COMPANY

ELKHART, INDIANA

Branch Offices and Exclusive Distributors in All Principal Cities of the United States.
Export Department: **New York.**
Canadian Distributors: **Toronto and Montreal.**

Manufacturers of AUTOMATIC CONTROLS *for Oil Burners — Gas Burners — Coal Burners — Electric Refrigerators — Furnace Fans — Mechanical Stokers — Industrial Ovens — Ice Machines — Unit Heaters . . . also of Sign Flashers — Mercury Switches — Electric Heaters — Corrugated Metal Bellows.*

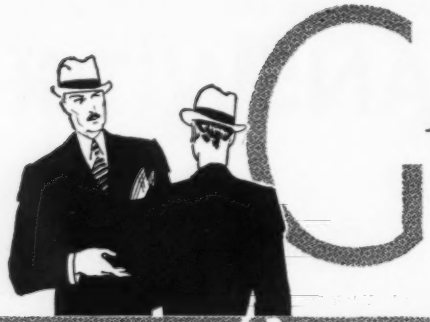
TIME-O-STAT CONTROLS COMPANY Dept. 1
Elkhart, Indiana

Without obligation to me, send at once detailed information, and effective dealer helps!

Name.....

Address.....

Company.....



Give your customers the BREAKS

O-B No. 1 Line

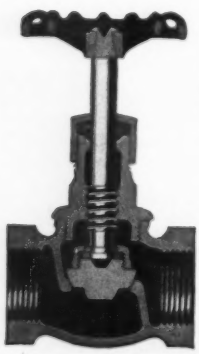
Highest quality brass disc valves for 125 lbs. working steam pressure. Made in globe and angle, horizontal, vertical and swing check types. Sizes from ¼-inch to 3 inches

THINGS equal to the same thing are equal to each other. Two plus two equals four. And three plus one equals four. Therefore, two plus two equals three plus one.

By interpreting the same theorem into terms of the contracting business, we have; cheap material cost plus high installation cost equals the contract price. And good material cost plus low installation cost equals the contract price. Therefore, cheap material cost plus high installation cost equals good material cost plus low installation cost. Which means that the installed cost of good valves is no greater than the installed cost of cheap valves.

Ohio Brass valves are everywhere acknowledged to be excellent valves. Generous weight and proper distribution of metal give strength where strength is most needed. Accurate machining and precise tapping insure quick and easy make-up. Scientific testing of each individual valve is your guaranty that O-B valves will not be found defective after they have been put on the line. Expensive return trips for free service become experiences of the past when you use O-B valves.

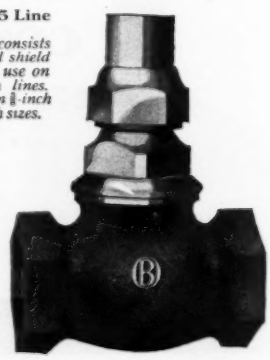
Give your customers the "breaks." Inasmuch as the installed cost of Ohio Brass valves is no greater than the installed cost of inferior valves, you will profit by giving your customers the best. They will appreciate the obvious quality of O-B valves and you will obtain "an extra profit in the make-up."



Cross-section view of Ohio Brass globe type valve with brass disc.

O-B No. 5 Line

This line consists of lock and shield valves for use on gas service lines. Available in ¾-inch and ½-inch sizes.



Ohio Brass Company
Mansfield, Ohio
1244V

Ohio Brass Co.

NEW YORK PITTSBURGH PHILADELPHIA CHICAGO ATLANTA BOSTON CLEVELAND ST. LOUIS LOS ANGELES Wm. P. HORN CO. SAN FRANCISCO SEATTLE

PORCELAIN INSULATORS LINE MATERIALS RAIL BONDS CAR EQUIPMENT MINING MATERIALS VALVES

HOME HUNTERS IN SEATTLE FIND

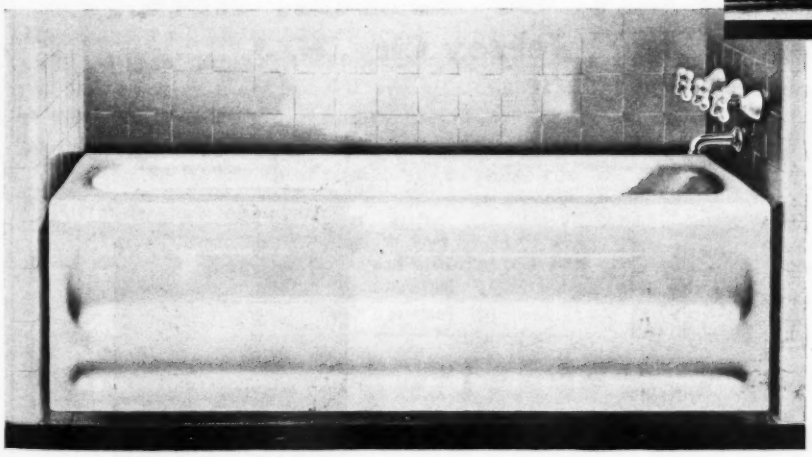
KOHLER QUALITY IN THE NEWEST BATHROOMS

BUILDERS of modern apartments, hotels and houses are giving closest attention to plumbing fixtures and fittings—not simply as a good investment of money, but also as an effective argument in leasing or selling.

For home hunters now are looking first in the bathroom . . . looking for charm and convenience and safety . . . looking carefully and critically.

The two new Seattle buildings shown here used Kohler enameled pieces, vitreous china and brass goods exclusively. Many of the bathrooms have the special charm of Kohler colored fixtures. In the words of the builder, A. S. Hainsworth, these "meet the situation perfectly."

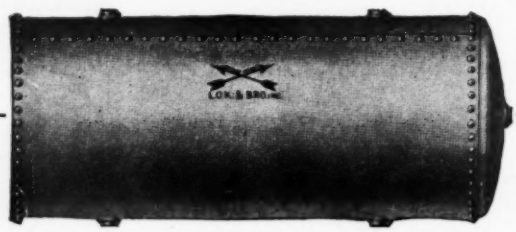
Similar all-Kohler installations in all parts of the country are working for the management by winning the favor of desirable tenants and owners. Wise builders add the precision of Kohler fittings to the clear shining beauty and permanence of Kohler fixtures. . . . Kohler Co. *Founded* 1873. Kohler, Wis.—*Shipping Point*, Sheboygan, Wis.—*Branches in principal cities*. . . . Look for the Kohler trade-mark on each fixture and fitting.



- PIEDMONT Apartment Hotel, Seattle, Wash. . . . *General contractor, A. S. Hainsworth. Plumbing contractor, Chisholm Plumbing & Heating Co. Wholesalers, Marshall-Wells Co.*
- PARK VISTA Apartments, Seattle, Wash. . . . *General contractor, A. S. Hainsworth. Plumbing contractor, Chisholm Plumbing & Heating Co. Wholesalers, Palmer Supply Co.*
- VICEROY Built-in Bath, K-30-BG, *used in both buildings shown. One piece, slope end, recess pattern, all-over enameled. Built-in over rim supply and secret drain fittings with 1-2 inch compression valves. A popular all-Kohler installation.*

KOHLER OF KOHLER

PLUMBING FIXTURES



When You Buy A Product that Bears this Trade Mark !

—you buy from one of best known, and oldest manufacturers for the trade.

—you buy ***known*** quality, good workmanship, and correct design.

—you buy ***service*** that knows the full meaning of the word cooperation.

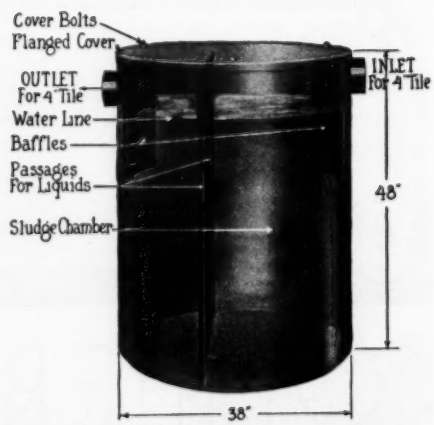
—you buy ***absolute dependability,*** which always has, and always will be the cornerstone of this business.

Storage Tanks
Pneumatic Tanks
Range Boilers
Expansion Tanks

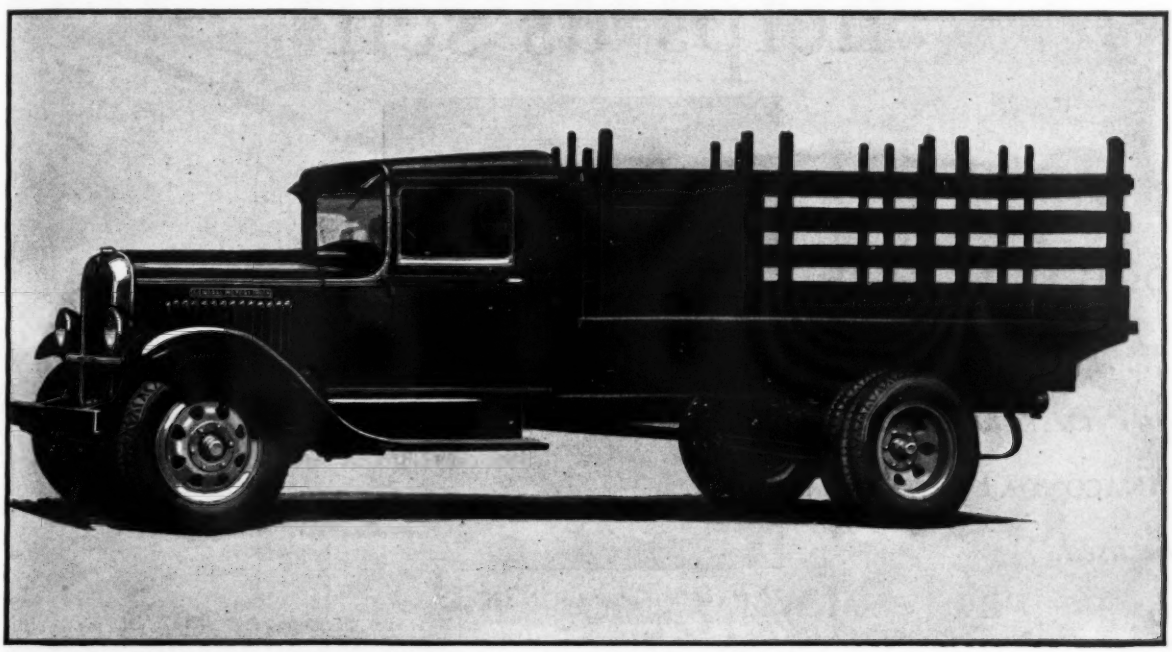
Barber Boilers
Fuel Oil Tanks
Septic Tanks
Scullery Sinks

L. O. KOVEN & BRO., INC.

154 Ogden Ave., Jersey City, N. J.



STANDARD BEARER of the Great GENERAL MOTORS TRUCK Line!



$3135—3½ TON RANGE

Model T-60C—(Price, Chassis only, F. O. B. Pontiac, Mich.)

THE Model T-60 is shown here in the 184½" wheelbase. Straight Rating 18,500 lbs.—total gross weight including load. It is also available in three other wheelbases—154¼", 166¾" and 200¼"—and in 18 different tire combinations.

HERE'S THE most widely respected truck in America. In haulage of plumbing materials and supplies—it has set records that will give other heavy duty units something to shoot at for a long time to come.

It's a real TRUCK, down to the smallest rivet in the burly 9-inch pressed steel frame. The 6-cylinder, 94-horsepower engine has more power and smooth speed than you'll ever use or need.

Up into the hundreds of thousands of miles you can count on this truck for economical service.

Time and again it has entered a fleet of huge, awkward, older-type vehicles still marketed for heavy duty. And within six months the owners have begun a program of replacement in favor of this model. That's because its smooth work speed, great pulling power and *maneuverability* frequently enable it to handle nearly twice as much work per day. At savings as high as 50%.

These are statements of facts—confidently made because based on the operating experiences of owners in many lines of business.

If you want to know how a really modern heavy duty truck performs, get behind the wheel and drive this one!

GENERAL MOTORS TRUCKS

TIME PAYMENTS, on any General Motors Truck, are financed at lowest rates available anywhere, through our own Yellow Manufacturing Acceptance Corp.
GENERAL MOTORS TRUCK CO., Pontiac, Michigan (*Subsidiary of* Yellow Truck & Coach Mfg. Company) GENERAL MOTORS TRUCKS . . . YELLOW CABS . . . COACHES.
Factory Branches, Distributors, Dealers—in 1500 principal cities and towns.

A MODERN TRUCK FOR EVERY PURSE AND PURPOSE

"ANACONDA ADVERTISING helps us sell"

says

D. H. FURNESS

"... we always advise our customers that ANACONDA BRASS PIPE *be used."*

D. H. Furness, manager of the Plumbing Department of Fowler & Sellars Co., White Plains, N.Y.

Glance into the well-equipped plumbing department of Fowler & Sellars Co.

MR. FURNESS, manager of the plumbing department of Fowler & Sellars, has standardized on Anaconda Brass Pipe. This successful forty-year-old firm finds that Anaconda Brass Pipe, backed up by Anaconda advertising, helps them secure business. Note what Mr. Furness says:

> "Ours is a community in which high standards in building construction prevail. During the forty years of our business life we have maintained a high quality of workmanship and have, for years, recommended and standardized on Anaconda Brass Pipe. We all know the damage rust can do and always advise our customers to use Anaconda Brass Pipe in new or replacement work. Anaconda magazine advertising, in telling the story of rust elimination, helps us sell quality and we are glad to cooperate because we find it is profitable."

The uniform quality and easy workability of Anaconda Brass Pipe is due to the great care used in every step of its manufacture—from mine to finished product. More than a hundred years' experience in producing Copper, Brass and Bronze is your assurance that the high quality of Anaconda Brass Pipe will be maintained.

Leading plumbing supply houses everywhere stock...

Anaconda 67 Brass Pipe for normally corrosive waters.

Anaconda 85 Red-Brass Pipe for highly corrosive waters, and for rigid underground service lines.

Anaconda Deoxidized Copper Tubes for use with compression fittings for underground service lines.

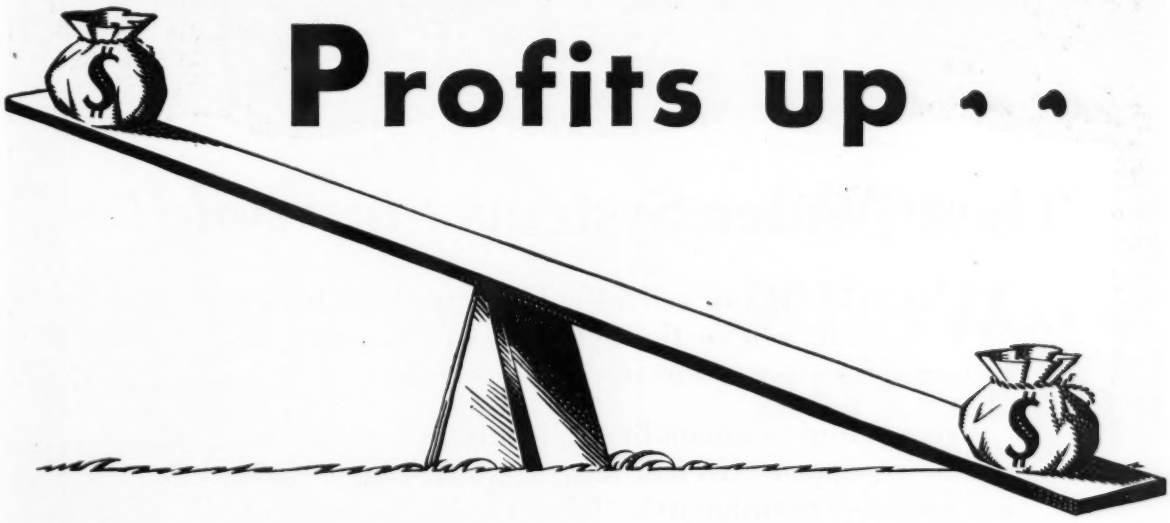
* * *

Our Technical Department will be glad to cooperate with you in determining the nature of your local water supply and recommending the Anaconda Brass Pipe to use.

ANACONDA
from mine to consumer

ANACONDA BRASS PIPE

THE AMERICAN BRASS COMPANY, GENERAL OFFICES, WATERBURY, CONN.



Profits up . .

. . costs down

There is a threefold way to prove that Dodge Trucks lower hauling costs and increase profits for plumbing and heating contractors. Simply ask owners, inspect and compare these workers and test one—with you behind the wheel.

By such thorough investigation you will know that Dodge Trucks have the power to pull, the speed to save time, the dependability to maintain schedules, the economy to save money, the long life to lower depreciation costs, the good looks to attract patronage—all qualities that keep costs down and profits up.

There are 124 standard Dodge Trucks to select from. They are built in capacities ranging from ½-ton to 3-ton, in various wheelbases, with optional gear ratios, tire sizes and body types. Your Dodge Brothers dealer can show you the one that fits your needs.

DODGE TRUCKS

GOULDS PUMPS

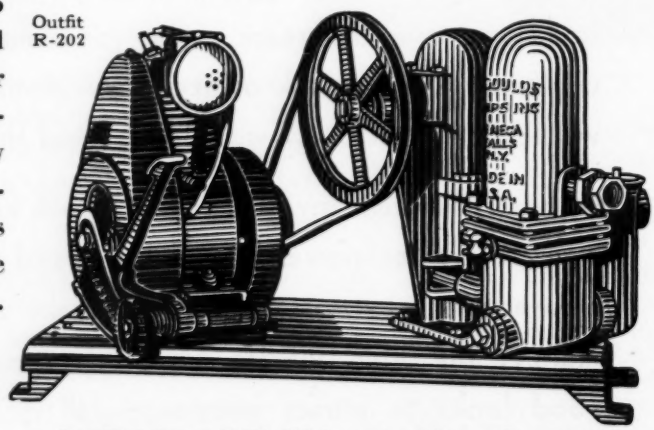
These Water Systems *Stay Sold!*

WHENEVER you sell a Goulds Ever-Oiled Water System, you're through with it. It won't be returned because of unsatisfactory service.

Every pump is unconditionally guaranteed for two years. Equipped with ball bearings which are sealed in grease — permanently lubricated — it operates economically and doesn't require attention. It doesn't even need oiling!

The Goulds line is complete, including 12 sizes and styles of electric or engine driven water systems. The price range is from $75 to $135, with liberal discounts. Your customers will appreciate the low price and the automatic features which minimize care and attention.

Outfit R-202

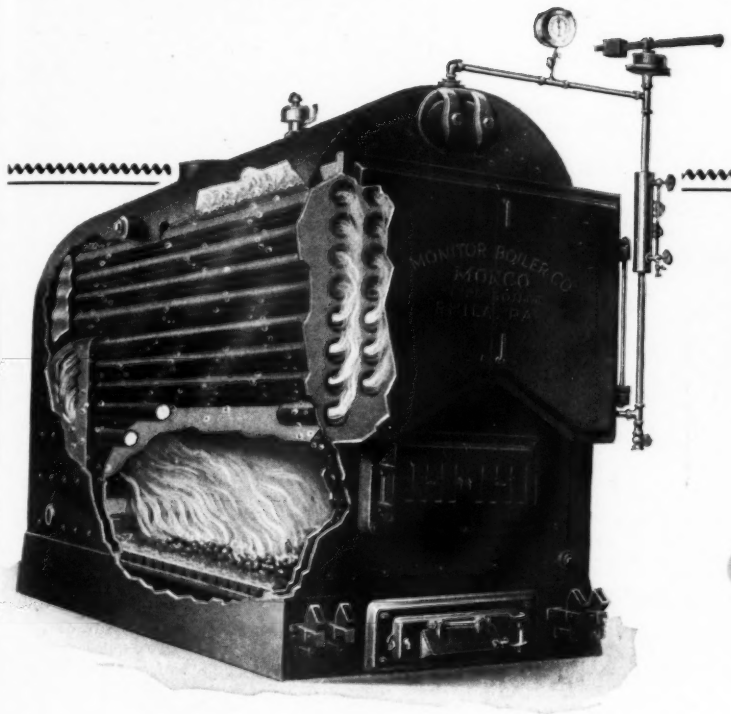


Ever-Oiled System R-202. V-belt, engine-driven outfit to supply running water to farms not supplied with electricity. Supplied with ¼-h.p., 4-cycle gasoline engine with foot starter. Endless, non-slipping fabric and rubber V-belt with tightening adjustment. Mounted on heavy oak base. Capacity is 210 gallons an hour. Price $120 complete.

Goulds Pumps, Inc.
Seneca Falls, N. Y.

GOULDS EVER-OILED WATER SYSTEMS

MONCO



STEEL HEATING BOILERS

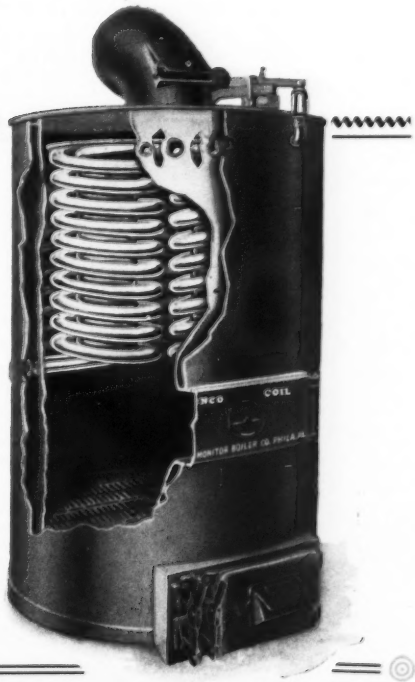
for

COAL OR OIL BURNING

MONCO

COIL HEATING BOILERS

COIL WATER HEATERS



MONITOR BOILER CO., 1505 Race St., Philadelphia, Pa.

Affiliated with United Dry Docks, Inc., New York

SMITH & WESSON FLUSH VALVES

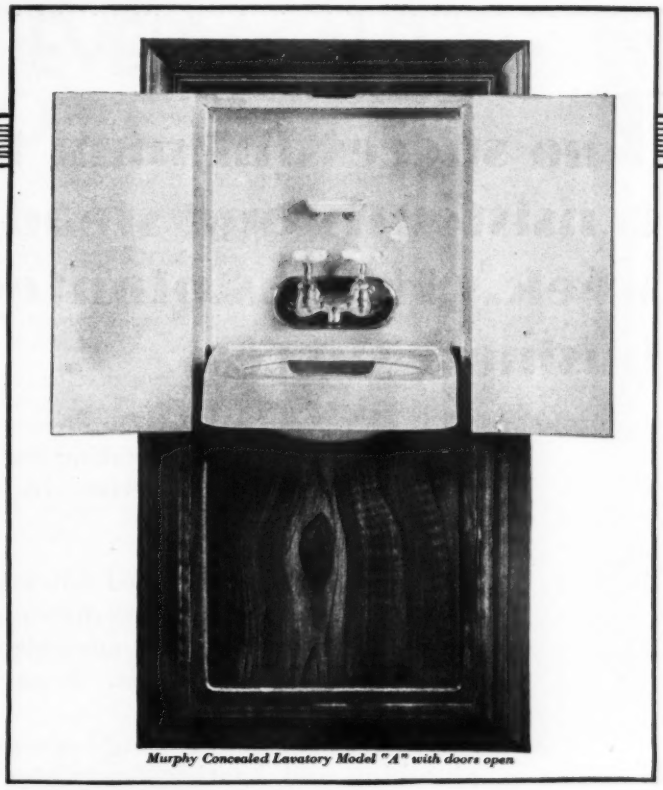
STANDING ALONE

...IN SERVICE

No matter what the installation—whether it be in the highest sky-scraper or the modest bungalow—SMITH & WESSON Flush Valves serve with steadfast efficiency.

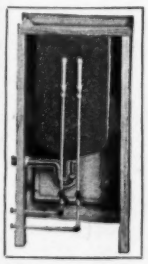
SMITH & WESSON service is there too. Whether you order one or a thousand every care and attention is given your request.

SMITH & WESSON
FLUSH VALVE DIVISION
SPRINGFIELD MASS.



Murphy Concealed Lavatory Model "A" with doors open

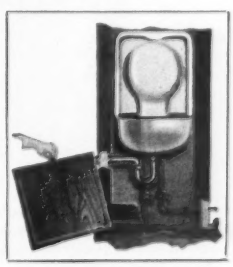
Why you can SELL MURPHY *Concealed Lavatories* at a Good Profit



This rear view picture shows the Murphy Concealed Lavatory correctly installed.

The Murphy Concealed Lavatory brings to all plumbing supply dealers an additional source of profit. It is something new. There is nothing like it. It is protected by basic patents and made and guaranteed by the Murphy Door Bed Company of Chicago . . . The Murphy Concealed Lavatory provides extra washroom facilities for almost every type of building—home, hotel, apartment, rooming house, office building—at very low cost and does not require any floor space. It is fastened right to the wall studs and extends only 3½ inches from the wall. The bowl tips up when not in use . . . Here's why you will find the Murphy Concealed Lavatory a fast selling product with a good profit margin: (1) It has instant appeal to everybody because it is new and different; (2) The need for it is recognized in every home; (3) In large buildings the saving in space more than pays for the Murphy Concealed Lavatories installed; (4) Installation is very simple in new and old buildings. Standard pipes and plumbing fixtures are used; (5) It is very attractive. Finished in grained mahogany or colors to harmonize with the room. Interior is porcelain enamel with chromium plated fittings; (6) The profit margin is large; (7) It is backed by a nationally known company. Write today for complete facts. Murphy Door Bed Company, Plumbing Fixture Division, 923 S. Keeler Ave., Chicago.

The washbowl tips up but faucets and trap are stationary. No pipe or tubing connection.



The lower panel is easily removed, giving free access to shut-off valves and trap.

The successful man has advertised consistently and steadily, week after week. He has planted the seeds of business success . . . . .

The plumbing and heating contractor is no exception to the rule that it pays to advertise. In fact, he should advertise more than many others.

Perhaps you have tried advertising once or twice, or several times, and decided that it didn't pay. No—advertising once or twice doesn't pay. But, advertise frequently and steadily and you will reap rich rewards. It pays.

"Domestic Engineering" recognized some time ago that the plumbing and heating contractor needed a continuous advertising service. "Domestic Engineering" acted and supplied that service—a professional service for practically no cost.

We offer you the "open sesame" to an increased volume in business. The entire campaign, newspaper ads, publicity items, educational leaflets, circulars, illustrations, sales letters and suggestions for window displays, all are planned and written for you. It is like the pot of gold at the rainbow's end, only the end of the rainbow has come to you. What more could you ask?

The cost of this service is $4.20 for twelve weeks. Every other week we send you two illustrations and a reprint of the page, which you have only to hand to your local newspaper. We simply charge you 35 cents for each cut.

Just clip off the corner of the page and mail to us attached to your letterhead, and your advertising worries cease to exist.

Retail Advertising Service

DOMESTIC ENGINEERING

1900 Prairie Avenue Chicago

MAKE·EVERY·SALE A·PROFIT·SALE

If you've had costly experiences with inferior hot water heaters YOU SHOULD HANDLE THE MERION.

This Water Heater not only puts profits in the cash register but also makes your customers boosters.

It is economical to buy and economical to operate and it is so simple in design and so attractive in appearance that ONE demonstration will usually sell it.

Put one on your showroom floor. Make every water heater sale you make a REAL profit sale.

Write us NOW for details.

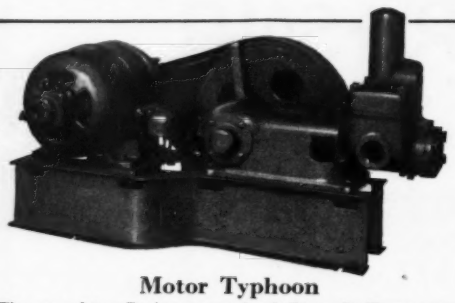
JOHN WOOD MFG. CO.
CONSHOHOCKEN, PENNA.

SURE PROFITS

INCREASED SALES

MERION

AUTOMATIC·WATER·HEATERS



Motor Typhoon

The motor driven Typhoon pump, for shallow wells. These assemblies are shipped complete (as shown) on a substantial base carefully lined up. All that is necessary is to connect them to the piping.

Type "B" Head—Engine Driven

Engine driven self-oiling Type "B" deep well head. The drive is of the V-belt principle known as the Flex-Mor—Fairbanks, Morse & Co.'s own drive. The illustration shows the 1½ hp. engine connected to the 6-inch stroke head.

Complete line

of F-M unit-built power pumps

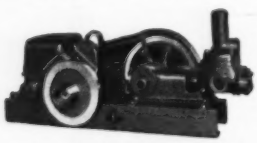
meets every pumping need

DEALERS say it pays to handle the Fairbanks-Morse line. There's a pump for every purpose . . . and important advantages make selling easier.

Fairbanks-Morse is the *only* water system builder that makes a complete line of motors and engines used in the pumps they sell. F-M equipment is *built* to function as a unit. Design is more compact. Parts can be obtained from a single source. Responsibility is undivided. Write for dealer proposition. Address Dept. I-5, 900 S. Wabash Ave., Chicago.

210-Gallon, Electric

Electric shallow well water system—210 or 420 gallons per hour. Low price—compact—attractive in its delft blue enclosure. *A real leader in a line of leaders.*



Engine-Typhoon

The F-M self-oiling engine connected by Flex-Mor drive to the self-oiling Typhoon pump. The Typhoon pump is a shallow well *duplex* pump made in sizes 600, 1000, 1500, 2500 and 5000 gallons per hour. Built to withstand 100 lbs. pressure which is equivalent to 231 feet elevation.

Belted-Typhoon

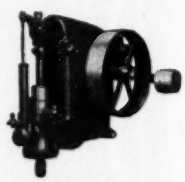
Pumps without the driver can be furnished where the customer already has his own engine or motor. Belt tightening idlers, assembled on the pump, can be furnished if desired. This pump is for shallow wells.

Direct-Connected

The Type "DC" electric driven self-oiling deep well head. An exceedingly compact, fully enclosed deep well head available in ¼, ½, ¾, 2 and 3 hp. sizes.

Type "B" Head—Motor Driven

The Type "B" head, motor driven. This head is made in 6-inch, 9-inch and 12-inch strokes in horse power capacities of from 1 hp. to 5 hp. For deep wells.



Belted Heads

The belted Type "B" head for use on deep wells, where the customer already has his driving power. The belted Type "B" head is regularly furnished with the idler as shown.

FAIRBANKS, MORSE & CO.

MANUFACTURERS - CHICAGO, U. S. A.

Branches and Service Stations *Covering Every State in the Union*

LEAD
THE EVERLASTING METAL

Quality LEAD PIPE *is known by the marking it bears*

If it is DUTCH BOY *stamped . . . you know it's high quality*

THE Dutch Boy trade-mark and the name National Lead Co. on lead pipe make it easy for you to identify lead pipe of known quality.

Every few inches on National Lead pipe, you will find stamped the famous Dutch Boy trade-mark and the name of the company behind the product. These are your sign-posts...they direct you to lead pipe that is of high quality, of proper wall thickness, and correct weight per foot.

This marking...a quality-mark...also makes it easy for you to give your customers the finest installations money can buy. For high quality lead pipe provides life-long protection against that menace of dependable water supply — RUST. Lead pipe never rusts—therefore it never causes rust-clogged lines. Lead pipe resists the corrosion of ground acids—therefore it is especially recommended for soil lines.

In your own experience, you have probably found many other good reasons for using lead pipe . . . the few joints required—its adaptability to varying conditions—its flexibility in hard-to-get-at places.

In talking lead pipe installations to your customers, keep in mind that lead pipe installations are high quality jobs. There's more money, and more satisfaction in that kind of work.

The Dutch Boy trade-mark on solder is also a guarantee of uniformity and dependability. Since every bar, every ingot is numbered to denote grade and composition, you can be sure of getting the same kind every time you buy. There is a grade of Dutch Boy for every soldering purpose . . . including wiping.

NATIONAL LEAD COMPANY

New York, Baltimore, Buffalo, Chicago, Cincinnati, Cleveland, St. Louis; National-Boston Lead Co., Boston; Georgia Lead Co., Atlanta; Gibson & Price Co., Cleveland; National Lead & Oil Co., of Pennsylvania, Pittsburgh; John T. Lewis & Bros. Co., Philadelphia.

LEAD PIPE

SPECIAL NOTICE

to

Plumbing and Heating Contractors

You can secure without charge, upon request, catalog sheets of any or all of the manufacturers listed below for use in loose-leaf binder.

These sheets are reprints of pages appearing in "Domestic Engineering Plumbing and Heating Catalog." They conform to the standards adopted by the plumbing and heating industries as to page size, punching and weight of stock. If interested, write Domestic Engineering, 1900 Prairie Avenue, Chicago, on your letterhead giving the names of the concerns whose loose sheets you desire.

Domestic Engineering handles the Speedlok binder which is especially designed to hold standardized sheets. The price of the binder is $3.00.

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Acheson Mfg. Co	Rankin, Pa.
Acme Asbestos Covering & Flooring Co	Chicago, Ill.
Acme Frost Proof Closet Mfg. Co	Baltimore, Md.
Acme Refining Co., The	Cleveland, Ohio
Acme Shower Curtain Co	Chicago, Ill.
Alamo Heater Co	Chicago, Ill.
Alberene Stone Co	New York City
Alliance Tank Co	Alliance, Ohio
American Brass Co	Waterbury, Conn.
American Manganese Bronze Co	Holmesburg, Pa.
American Pipe Tool Co	Chicago, Ill.
American Radiator Co	New York City
American Steam Pump Co	Battle Creek, Mich.
American Valve & Enameling Corp	Indianapolis, Ind.
Armstrong Bros. Tool Co	Chicago, Ill.
Armstrong Mfg. Co	Bridgeport, Conn.
Atchison Specialty Mfg. Co	Atchison, Kans.
Atlas Brass Foundry Co	Columbus, Ohio
Automatic Gas Steam Radiator Co	Pittsburgh, Pa.
Autovent Fan & Blower Co	Chicago, Ill.
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Ballantine, B. D	Fitchburg, Mass.
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Barrett Mfg. Co., James	Boston, Mass.
Bay Ridge Specialty Co., Inc	Trenton, N. J.
Bead Chain Mfg. Co	Bridgeport, Conn.
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Bell & Gossett Co	Chicago, Ill.
Beneke Mfg. Co	Chicago, Ill.
Benson Co., Inc., Alex R	Hudson, N. Y.
Bignall Co., The	Medina, N. Y.
Blue Seal Chemical Co	Roselle, N. J.
Boosey Mfg. Co., Norman	Detroit, Mich.
Borden Co	Warren, Ohio
Bowlus Mfg. Co., The	Springfield, Ohio
Boyle & Co., Inc., C. A	Chicago, Ill.
Boynton Furance Co	New York City
Bradley Washfountain Co	Milwaukee, Wis.
Brunswick-Kroeschell Company	Chicago, Ill.
Buckeye Pump & Mfg. Co	Columbus, Ohio
Buffalo Forge Co	Buffalo, N. Y.
Buffalo Meter Co	Buffalo, N. Y.
Burkert Co., Inc., R. N	Trenton, N. J.
Burnham Boiler Corp	Irvington, N. Y.
Butler Mfg. Co	Minneapolis, Minn.
Butler, Thos. F	Lorain, Ohio
Camden Pottery Co	Camden, N. J.
Capitol Brass Works	Detroit, Mich.
Carty & Moore Engineering Co., Inc	Detroit, Mich.
Case & Son Mfg. Co., W. A	Buffalo, N. Y.
Celina Mfg. Co	Celina, Ohio
Central Foundry Co	New York City
Central Radiator Co	New York City
Central Specialty Co	Detroit, Mich.
Chamberlain Co., The	Pittsburgh, Pa.
Chicago Faucet Co., The	Chicago, Ill.
Chicago Flexible Shaft Co. (Sprinkler Division)	Chicago, Ill.
Chicago Granitine Mfg. Co	Chicago, Ill.
Chicago Pump Co	Chicago, Ill.
City Brass Corp	New York City
Clearflow Valve	Berkeley, Calif.
Cleveland Brass Mfg. Co., The	Cleveland, Ohio
Cleveland Heater Co	Cleveland, Ohio
Columbia Radiator Co	McKeesport, Pa.
Comet Radiator Co	Philadelphia, Pa.
Commonwealth Brass Corp	Detroit, Mich.
Compound Injector & Specialty Co	Chicago, Ill.
Conemaugh Iron Works	Latrobe, Pa.
Connors Paint Mfg. Co., Wm., The	Troy, N. Y.
Conover Co	Chicago, Ill.
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Curtis & Curtis Co., The	Bridgeport, Conn.
Dahlquist Mfg. Co	South Boston, Mass.
Dargent, Charles	Brooklyn, N. Y.
Dart Mfg. Co., E. M	Providence, R. I.
Davis Engineering Corp	New York City
De-Bar Co	Brooklyn, N. Y.
Decatur Pump Co	Decatur, Ill.
Dececo Co., The	Boston, Mass.
Delaware Tool Co	Wilmington, Del.
d'Este Co., Julian	Boston, Mass.
Detroit Lubricator Co	Detroit, Mich.
Dick Brothers, Inc	Reading, Pa.
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Eastern Foundry Co., The	Boyertown, Pa.
Ebinger Sanitary Mfg. Co., D. A	Columbus, Ohio
Economy Heater Co	Chicago, Ill.
Economy Pumping Machinery Co	Chicago, Ill.
Eljer Co	Ford City, Pa.
Elkay Mfg. Co	Chicago, Ill.
Elkhart Foundry & Machine Co	Elkhart, Ind.
Elkhart Iron Works	Elkhart, Ind.
Enterprise Brass Works	Muskegon, Mich.
Erie Tool Works, The	Erie, Pa.
Estabrook's Sons, R	South Boston, Mass.
Ever-Ready Gas Heater Valve Co	Detroit, Mich.
Excelsior Leather Washer Mfg. Co	Rockford, Ill.
Excelso Products Corp	Buffalo, N. Y.
Exeter Brass Works	Exeter, N. H.
Fairbanks Engineering Co	Worcester, Mass.
Federal Radiator Co	Zanesville, Ohio
Fischer Spring Co., Chas	Brooklyn, N. Y.
Flagg & Co., Inc., Stanley G	Philadelphia, Pa.
Florence Stove Co	Boston, Mass.
Gas-O-Gen Corp	Chicago, Ill.
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Gerard Mfg. Co	Dickson City, Pa.
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Gerstein & Sons, H	South Boston, Mass.
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Hays Mfg. Co	Erie, Pa.
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Milwaukee Stamping Co.....West Allis, Wis.
Milwaukee Valve Co.....Milwaukee, Wis.
Minneapolis-Honeywell Regulator Co.....Minneapolis, Minn.
Misener Mfg. Co., Inc.....Syracuse, N. Y.
Modern Iron Works.....Quincy, Ill.
Modine Mfg. Co.....Racine, Wis.
Mohawk Septic Tank Co.....Schenectady, N. Y.
Molby Boiler Co., Inc.....New York City
Moore, F. J.....Minneapolis, Minn.
Morton Mfg. Co.....Chicago, Ill.
Muller, Edward.....North Bergen, N. J.
Multicell Radiator Corp.....Lockport, N. Y.

Nash Engineering Co.....South Norwalk, Conn.
Nason Mfg. Co.....New York City
National Pipe Bending Co.....New Haven, Conn.
Neptune Meter Co.....New York City
Newark Brass Works.....Newark, N. J.
New Britain Machine Co.....New Britain, Conn.
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Newbury & Son, Jay H.....Goshen, N. Y.
New York Air Valve Corp.....New York City
New York Blower Co.....Chicago, Ill.
New York Brass Foundry Co.....New York City
Northern Indiana Brass Co.....Elkhart, Ind.
Northwestern Chemical Co., The.....Marietta, Ohio
Nustone Products Corp.....Union City, N. J.
Nye Tool & Machine Works.....Chicago, Ill.

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Olsen, H. T.....New York City
Oster Mfg. Co.....Cleveland, Ohio

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Peerless Machine Co.....Racine, Wis.
Penn Engineering Co.....Reading, Pa.
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Perfect Tank & Seat Co.....Syracuse, N. Y.
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Plomb Tool Co.....Los Angeles, Cal.
Polygon Products Co.....Boston, Mass.
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Power Regulator Co.....Chicago, Ill.

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Reed Mfg. Co.....Erie, Pa.
Reinhardt Mfg. Co., Edwin G.....Cincinnati, Ohio
Rhode Island Fittings Co.....Providence, R. I.
Richards Corp.....Pittsburgh, Pa.
Richardson & Boynton Co.....New York, N. Y.
Richmond Foundry & Mfg. Co., Inc.....Richmond, Va.
Ridge Tool Co.....Elyria, Ohio
Riverside Boiler Works, Inc.....Cambridge, Mass.
Riverside Foundry & Galvanizing Co.....Kalamazoo, Mich.
Robbins, Gamwell & Co.....Pittsfield, Mass.
Robertshaw Thermostat Co.....Youngwood, Pa.
Robertson Co., H. B.....Chicago, Ill.
Rock Island Mfg. Co.....Rock Island, Ill.
Rockford Brass Works.....Rockford, Ill.
Royal Brass Mfg. Co., The.....Cleveland, Ohio
Rumsey Pump Co., Ltd.....Seneca Falls, N. Y.
Russell Mfg. Co., Inc., John M.....Naugatuck, Conn.
Russell & Co., W. A.....New York City

S. E. T. Valve & Hydrant Co.....New York, N. Y.
Sall Mountain Co.....Chicago, Ill.
Sands Mfg. Co.....Cleveland, Ohio
San-Equip, Inc.....Syracuse, N. Y.
Sanitary-Dash Corp.....New York City
Sarco Co., Inc.....New York City
Savo Mfg. Co.....Chicago, Ill.
Scaife & Sons Co., Wm. B.....Oakmont, Pa.
Scientific Heater Co.....Cleveland, Ohio
Seco Incinerator Co.....Kansas City, Mo.
Seehausen, Wehrs & Co.....Chicago, Ill.
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Semler Co.....Jeanette, Pa.
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Simplex Boiler Stand Co.....Brooklyn, N. Y.
Simplex Mfg. Co.....Chicago, Ill.
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Smooth-On Mfg. Co.....Jersey City, N. J.
Spencer Regulator Co.....Salem, Mass.
Stack Heater Co.....Boston, Mass.
Standard Asbestos Mfg. Co.....Chicago, Ill.
Standard Elsmere Granite Co.....Chicago, Ill.
Standard Tank & Seat Co.....Camden, N. J.
Sterling Faucet Co.....Newcomerstown, Ohio
Stoll, Chas. J.....New York City
Stringer Brothers Co.....Chicago, Ill.
Structural Slate Co.....Pen Argyl, Pa.
Stuart & Co., D. A.....Chicago, Ill.
Swett Iron Works, A. L.....Medina, N. Y.

Taco Heaters, Inc.....New York City
Taylor Co., Halsey W., The.....Warren, Ohio
Teck Manufacturing Co.....Chicago, Ill.
Teekorator, Inc.....Rochester, N. Y.
Tillery's Little Janitor Clock Co.....Newark, N. J.
Time-O-Stat Controls Co.....Elkhart, Ind.
Titchener & Co., E. H.....Binghamton, N. Y.
Toledo Pipe Threading Machine Co.....Toledo, Ohio
Trageser Steam Copper Works, John.....Maspeth, N. Y.
Trenton Brass & Machine Co.....Trenton, N. J.
Trimont Mfg. Co., Inc.....Boston, Mass.
Tryco Products, Inc.....Westfield, Mass.

Utica Radiator Corp.....Utica, N. Y.
Utility Laboratory, Inc.....Brooklyn, N. Y.

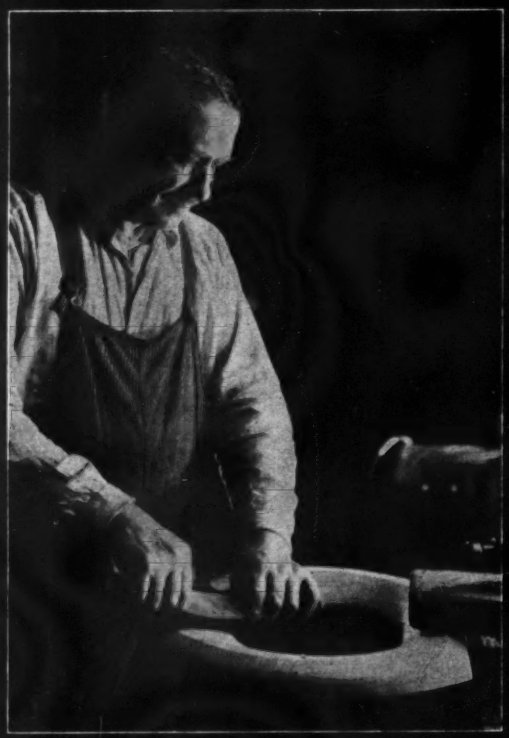
Van Arnam Mfg. Co.....Fort Wayne, Ind.
Vanderman Mfg. Co.....Willimantic, Conn.
Vinco Co., Inc.....New York City
Vitreous Enameling & Stamping Co., Inc.....New York City
Vogel Co., Joseph A.....Wilmington, Del.
Vulcatex, Inc.....Chicago, Ill.

Wade Iron Sanitary Mfg. Co.....Chicago, Ill.
Walker Dishwater Corp.....Syracuse, N. Y.
Walworth Company.....Boston, Mass.
Ware Coupling & Nipple Co.....Ware, Mass.
Warnock Manufacturing Co.....Worcester, Mass.
Warren Electric Appliance Co.....Warren, Pa.
Washington Metal Products Co.....Washington C. H., Ohio
Watts Regulator Co.....Lawrence, Mass.
Weis Mfg. Co., Inc., Henry.....Elkhart, Ind.
Wesley Co., Chas.....Chicago, Ill.
Wessels & Sons, D. D.....Detroit, Mich.
Western Wire Products Co.....St. Louis, Mo.
Wheeling Machine Products Co.....Wheeling, W. Va.
Whitlock Coil Pipe Co.....Hartford, Conn.
White Mfg. Co.....Newark, N. J.
Wilbur & Williams Co.....Boston, Mass.
Wilks Mfg. Co., S.....Chicago, Ill.
Williams & Co., J. H.....Buffalo, N. Y.
Wood Mfg. Co., John.....Conshohocken, Pa.
Worcester Brush & Scraper Co.....Worcester, Mass.

"X" Laboratories.....New York City

Yeomans Brothers Co.....Chicago, Ill.
Yost Mfg. Co.....Meadville, Pa.

Zurn Mfg. Co., J. A.....Erie, Pa.



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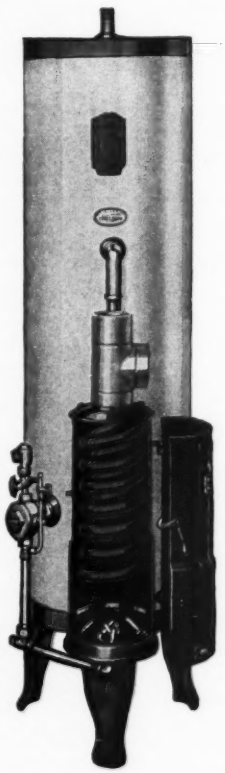

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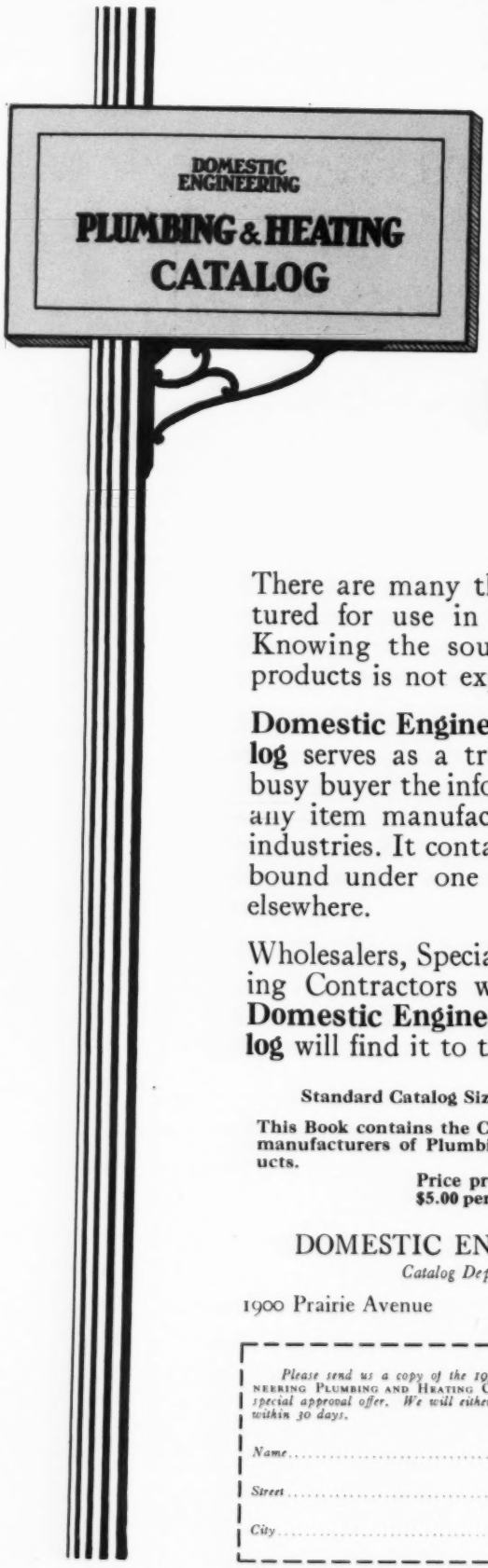

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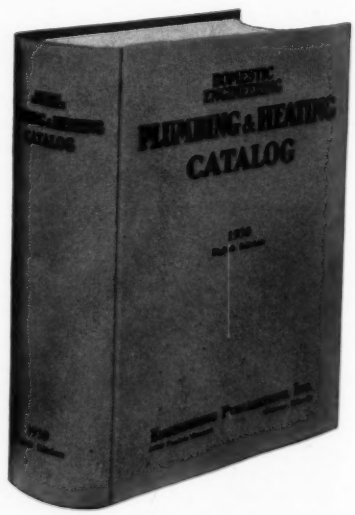

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On guard . . . . THE PLUMBER

Between civilization and its foemen . . .

FIRE • DROUGHT • COLD • DIRT • PESTILENCE

stands YOUR *plumber* . . . . . On Guard!

WITHOUT him civilization would crumble. Fires would become blazing conflagrations. Lacking water, cities would stand deserted, abandoned by inhabitants forced to primitive habitation near inland lakes and streams. With winter's onslaught, devastating cold would congeal the pulses of the few survivors. Lacking sewage disposal, stagnating filth would breed a frightful aftermath of pestilence—nor could hospitals stay the specter of death. Paralyzed by lack of water, industry and transportation would wither and decay.

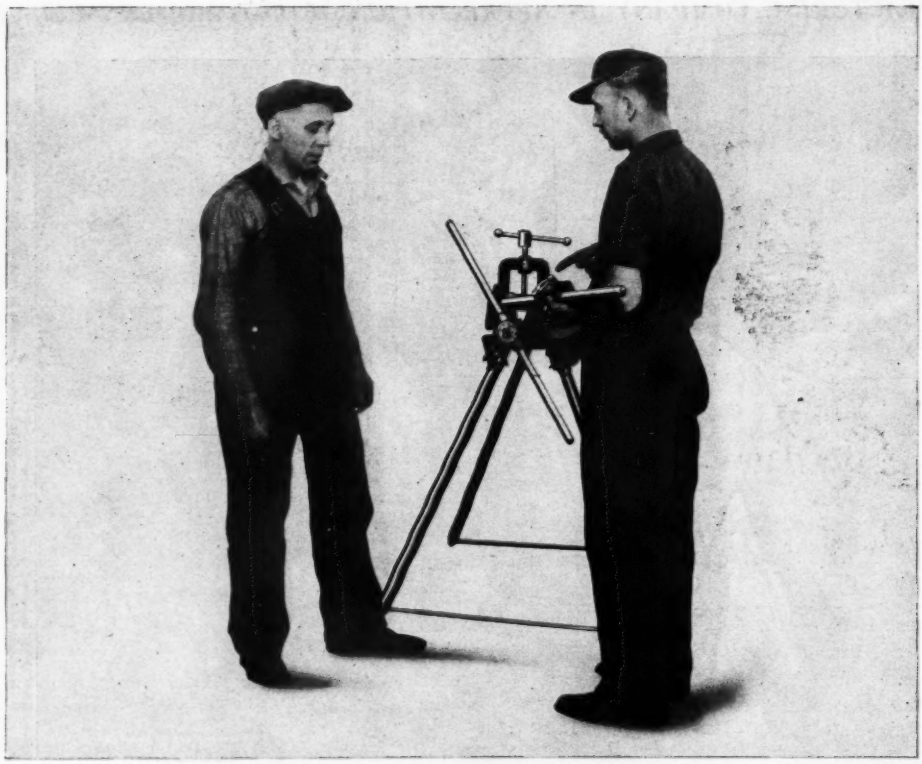
ON GUARD—your modern plumber faithfully toils to protect civilization. Toils that water may ever be available for fighting fire; that pure drinking water shall be yours at the turn of a faucet; that modern heating may contribute health and comfort. Thanks to the plumber, you may start or finish your day with a refreshing bath. Sparkling tile and glistening porcelain leave no breeding place for germs to lurk. Waste of every kind is washed away through modern sewerage installed and kept in order by your plumber.

Respect and gratitude are due your plumber. Recognize him as a neighborhood merchant who merits your continued confidence. As a business man, his life work is to provide your home and loved ones with every modern comfort and the protection of his prompt emergency service.

* * *

And so civilization advances, comforts multiply and the ancient foemen are routed because The Plumber stands—ON GUARD.

CHURCH *Sani*-**SEATS** . . . . . *Holyoke, Massachusetts*



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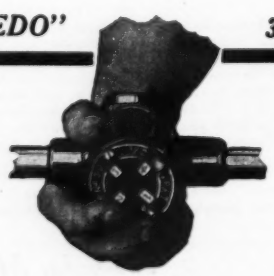

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DOMESTIC ENGINEERING

PLUMBING AND HEATING CONTRACTING AND MERCHANDISING

Observations

Remodeling — A Way to Profit

In thinking about the subject of remodeling, or rehabilitation, as some call it, the plumbing and heating contractor would do well to realize that it is not something altogether new, and so something requiring a great deal of expert attention. Every plumbing and heating contractor handles a certain amount of it and is satisfied to call it repairing or jobbing work. Some of the larger operators do some of that type of work, and what they do we think of as maintenance work, because it has to do with the upkeep of larger jobs.

So that, when we speak of the remodeling movement, we mean simply the tendency which has shown itself among plumbers and heating contractors to put selling effort back of repair work. That is, instead of allowing orders for repair work to trickle in from customers, they have taken up the idea of reaching out for it, of urging home owners not to allow plumbing and heating to get so old that it becomes necessary to call a contractor in merely to keep it in operation. Naturally, that means replacement of accessories and fixtures—it means giving a new start to the bathroom, the kitchen, or to the heating plant.

Going After Business

It has been estimated that there are sixteen million homes in the United States which need to be overhauled. In the face of the present small volume of new building, the plumbing and heating contractor is under the necessity of procuring business to keep his organization running. He is very much in the position of the manufacturer of buggies when the automobile came in. The smart manufacturer slipped over into the automobile field; the others are no more.

The plumbing and heating contractor who is alert to the change is doing what the smart buggy manufacturer did. He is slipping over into the remodeling field, he is making a drive on the owner of existing structures, pointing out to them the advantages of overhauling plumbing and heating—of replacing old-fashioned toilets, lavatories, bath tubs, sinks, water heating equipment; and of putting in radiator heat instead of warm air; and of taking advantage of newer forms of heating by the use of the domestic stoker with coal, by installing the oil burner or using gas burning equipment.

It is said of the certified heating job that it is just a good heating job "dressed up for merchandising and selling purposes." So with the idea of remodeling. It is just the presentation of the idea of keeping plumbing and heating equipment in first-class working order. And if the only way that can be done is to replace it with modern fixtures and accessories, then the contractor stands ready to offer them. This brings up the question of style and of color, of the newer chromium plated fittings—all factors which help the contractor to interest his customer in the idea of replacing the older equipment.

In this issue DOMESTIC ENGINEERING takes up again, on a broader basis, the remodeling movement and its possibilities. It will be remembered that even before the movement was given definite form by the establishment of the National Home Modernizing Bureau, DOMESTIC ENGINEERING had been urging this form of selling effort, had aided various contractors in their efforts to develop it, and had published a series of advertisements on plumbing and heating remodeling, used by contractors to reach a total circulation of more than seven million people.

A New Drive

We recommend to our readers that they follow the

material which will be published in our columns on this subject. We earnestly believe that in remodeling will be found the profitable opportunities during the present let-down in building; and we know from the experiences of our readers that remodeling, even in times when there is a good volume of building, is useful in "taking up the slack" and in furnishing opportunities for exercising salesmanship—probably one of the keenest pleasures to be had in business.

Merchandising Is Selling

Webster's dictionary gives this definition of the word merchandising: "To buy and sell." As we use it today, we apply it to selling. We think it is worth while to comment briefly on the definition of the word merchandising. Because it somehow suggests a number of difficult things—things which only an expert can understand.

Actually, the word merchandising means to sell. And we are confident that there is no man in business who has not done some selling. All the talk of merchandising which is going on is merely meant to point out the fact that, as business is conducted today, it is necessary to think more intensely about selling, to plan selling efforts, to seek the opportunity to sell goods and services rather than waiting for the opportunity to seek the business man.

Men have been selling in this industry ever since it was founded—today they are doing it more thoughtfully. So that the complete definition of merchandising is a very simple one—it is "thoughtful selling." And that is within the ability of any man in business.

The Large Contractor

We do not want to dismiss the subject of remodeling without touching upon it as it affects the larger contractor. It is probably true that up to the present the idea of remodeling—and the wave of remodeling work—has been directed at residential buildings. Such advertising as the various modernizing bureaus have been doing has been aimed at the home owner or the owner of rental property. Thus, the larger contractor may have recognized the value of this method of creating work to take the place of new work, without seeing precisely the application of it to his own organization, accustomed to figuring jobs out of architect's offices and, generally, following the larger forms of construction.

But the contractor of this type who is, at present, finding fewer projects of the type to which he is accustomed to figure on, need not sit back and wait for a return of a big volume. The idea of modernizing has its application to his organization.

We must not allow the present lower figure of construction to distort the entire business picture. Industry is traveling at a high rate of speed. Some lines of business are operating at new high totals; and most of those engaged in rendering service to the public, or producing merchandise for consumption, are enjoying a good volume.

Big Remodeling Opportunities

At the same time, there is a constant pressure on these manufacturing plants in line with the movement for the elimination of waste in industry. Such changes as required by the revamping of plants for greater efficiency, and such extensions of plant equipment as are needed to take care of new processes meant to increase production or cut down cost, or introduce diversification, when taken together, mean that there is a great deal of work of a major kind—piping, heating and plumbing—for which the services of a large plumbing and heating contractor are needed.

Goods are being produced, service is being rendered to the public, in satisfactory volume. Hence we hear of a contractor who can keep his organization busy because he has a contract with one type of firm—a nationally known bakery—to maintain its equipment. He has a job of two months' or more duration in taking care of the piping changes made necessary by the reorganization of a large laundry. These are plant jobs—jobs which a man may secure for his organization by his contact with men in business and by his knowledge, perhaps, of the processes in certain manufacturing lines. We hear of another plumber who found that a moving picture theater of the modern type was having trouble with bad air in the auditorium. The air conditioning apparatus was quite correct. After a number of men had failed to find the trouble, he located it—and it meant a plumbing job in the installation of a new pump to take care of waste water.

We mention these few examples as indications of what the contractor, familiar with larger types of illustrations, may find awaiting him in what might be termed his remodeling field.

Production Continues

Building generally may be divided into three kinds: Speculative building, residential and general (including office buildings, schools, etc.) building, and productive building. If, at the moment, the first two classes—and in both there has been a great deal of speculative element—show a certain degree of slackness, productive building must continue. It will continue, first, because production must continue and a constant endeavor to better methods will necessitate constant changes; and, second, because of the efforts put forth by the conference called by President Hoover to assure that fact. Tremendous totals have been guaranteed in various kinds of construction. Not all, but some, of it, will carry its share of work for plumbing and heating contractors.

The situation offers as much opportunity to the larger type of contractor, as to the type of man who has done only residential work; and the development of remodeling work in the larger buildings would mean a more complete stabilization of conditions in the industry.

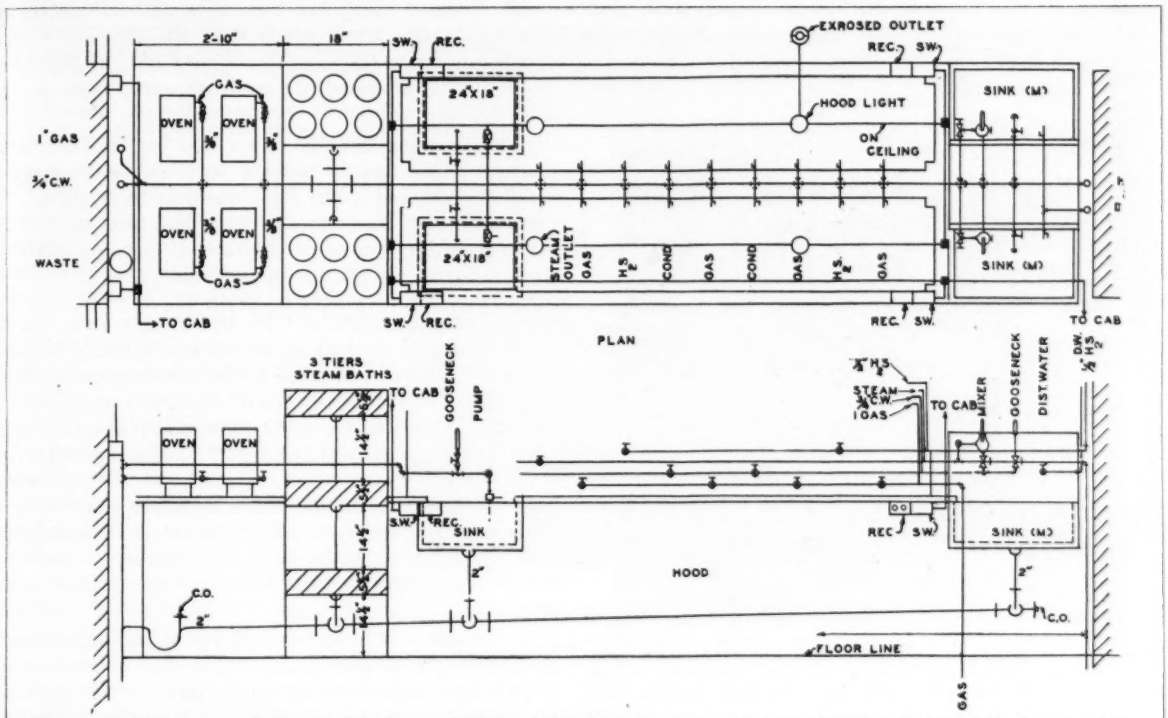


Fig. 1—Detail of one of the special chemical desks, indicating the large amount of piping involved in the plumbing installation

Plumbing *in the* Harvard Chemical Laboratory

By D. J. SULLIVAN

CHEMICAL laboratory piping has always presented many problems to the plumbing contractor. This is especially so of late years with chemistry playing such an important part in schools, hospitals and industrial buildings. More and more new questions arise as new apparatus is devised and the demand on this branch of the trade is increasing daily.

Therefore, the recent dedication of the new chemical laboratories of Harvard University should be of interest to all members of the plumbing industry, both engineers and contractors, as it marks the completion of two of the best equipped buildings, for the study of chemistry, in the country, with the latest and finest of equipment. They are also excellent examples of the splendid results obtained, by employing engineers experienced in plumbing to co-operate with the architects in the design of any building. The plumbing work was installed by the J. A. Cotter Co. of Boston, Mass.

The laboratories consist of two buildings: The Edward Mallinckrodt chemical laboratory and the Converse memorial laboratory and they are located at the junction of Oxford and Kirkland streets, Cambridge, Mass.

The Mallinckrodt laboratory is an L shaped building, the main branch being 302 ft. in length and the wing 90 ft. and is used for all the undergraduate chemical courses.

The Converse laboratory is 124 ft. long, and is given over to organic chemistry.

Both buildings are of reinforced concrete with steel frames and pan construction. Double beams spaced to permit ducts to rise between them run the full length of the corridor on each side. Beams also run from the center of all columns to the outside wall at right angles to the corridor.

For four years, previous to the commencement of actual construction, the chemical faculty of Harvard University, the architects and the engineers were engaged in a systematic study of the work necessary for the design of the buildings and equipment. Tests of various sorts were conducted and experimental equipment constructed to determine the most satisfactory arrangement of piping, and selection of apparatus for each particular purpose. Visits of inspection were made to many of the principal laboratories and universities, and observations noted of all the advantages obtained and errors and faults to be

avoided. It was through such intensive study and effort and close co-operation that such good results were achieved.

The drainage piping for each building was divided into

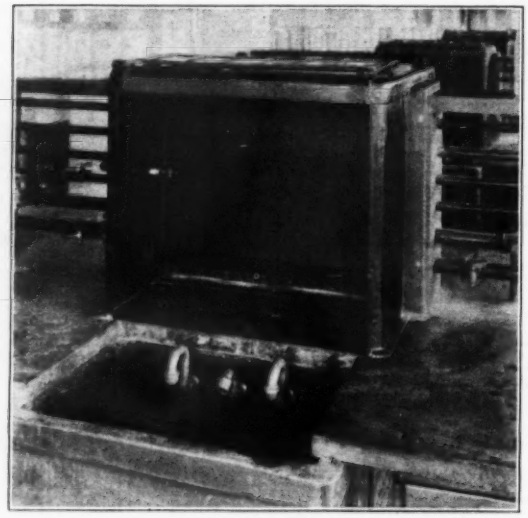


Fig. 2—The hydrogen sulphide laboratory table with hood and sink showing special cocks in the sink. There are remote controls below the sink which are not shown in this view

three complete systems—sanitary, chemical waste and rain water.

This division of systems was a factor in the planning of the building. By keeping the sanitary fixtures as closely grouped as possible, a considerable saving in piping was effected. The sanitary system was of cast iron with each fixture separately trapped and vented. As there was nothing unusual in the installation of piping in this system, we will not deal with it in this article.

The principal points considered in designing the chemical waste pipe system were: to find a pipe which will have a long life, which means that it should be impervious to the action of acids; to avoid the possibility of breakage after installation, as most chemical pipes are quite brittle; and economy which meant that maintenance had to be considered as well as first cost.

Difficulty Found in Horizontal Piping

It had been found that in the many installations examined, the horizontal piping was the source of trouble and the vertical stacks were giving good service.

It was, therefore, decided to use extra heavy cast iron pipes for the vertical stacks and use chemical stoneware for the horizontal runs. All the vertical cast iron risers were run exposed, as were the horizontal stoneware pipes. The vertical risers were run in this manner as an extra precaution against the possibility of leaks through breakage or possible destruction by acids.

To further protect the piping, all cast iron pipe was tarred throughout.

All chemical risers are 3-in. pipe and all horizontal chemical wastes are 2-in. A 3-in. tee was left on the cast iron riser to take this 2-in. waste and the latter being of chemical stoneware made the proper fit in the 3-in. cast iron hub.

After selecting the pipe to be used for the horizontal piping it meant that the problem surrounding the making up of the hub and spigot joint was next to be solved. It had been found that many methods had been applied all with varying degrees of success, and after many methods were tried the following was adopted.

Acid Proof Joints

The inside of the hub of the fitting and the outside of the spigot end to be inserted in the hub were coated with asphaltum. Asbestos rope was then dipped in asphaltum and then packed in the joint while still pliable. Then a specially prepared acid-proof composition heated to a molten state was poured in the joint and after a week's time to allow it to set, the whole joint was covered by a waterproof cement. Each horizontal run of chemical piping was separately tested before connecting to the riser and it was found that these joints were exceptionally good.

To prevent any loosening of joints or sagging of pipes all horizontal stoneware piping was supported by a hanger at each hub. Instead of the single rod and ring or clamp

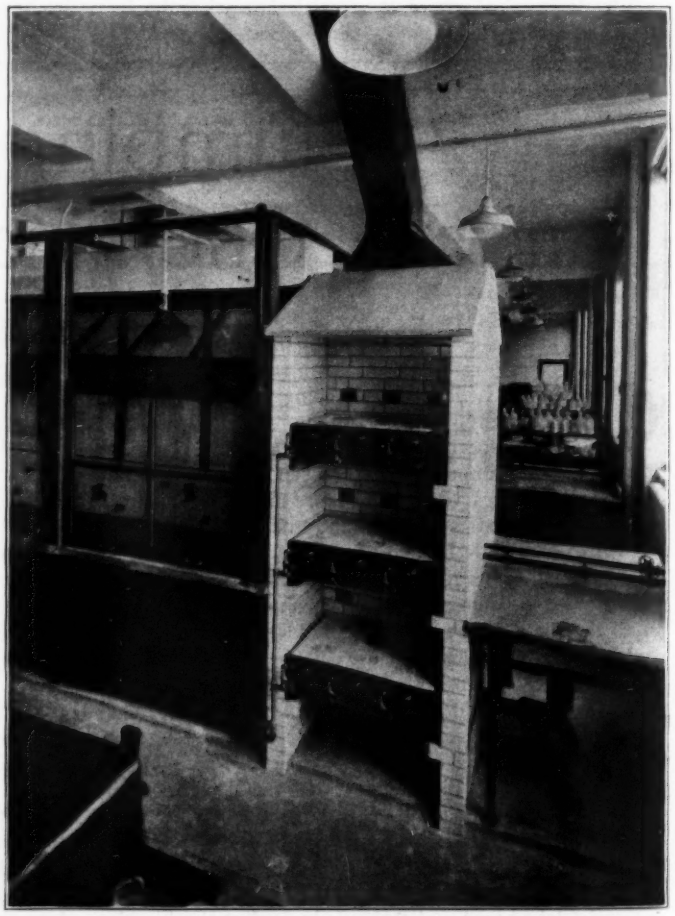


Fig. 3—A view of steam baths and hoods which required considerable piping

Fig. 4—The laboratory piping showing acid-proof sinks, goose necks with water pumps, wastes with pumps above the table and the general arrangement of supply pipes above the table

customarily used to support waste piping a specially designed U-shaped hanger was used. One rod on each side of the pipe holds the hanger so firmly in place that all vibration is prevented, thus eliminating the principal cause of loosened joints. Vertical risers were supported by pipe clamps at every floor.

Class-room tables were the basis of the design of the entire building. All of these tables have plumbing equipment and required a waste pipe and supplies. These tables are generally located, one in each bay, at right angles to the corridor. The chemical waste risers were run up, therefore, one to a bay. Wherever possible, these table wastes were run above the floor, thus eliminating a considerable amount of ceiling piping with all its attending objections of shadows being cast by sunlight and electric lights and at the same time giving easy access to the piping if required. Whenever tables were not located in front of the windows and beam conditions would permit, the table centered on the waste riser. This arrangement avoided a large number of horizontal runs and offset fittings, a common source of trouble on chemical waste piping and at the same time cleared the ceilings below this piping.

The waste risers were carried up individually into the attic space, where they were tied together as vents and continued through the roof in specially designed flues, to give them as presentable an appearance as possible taking the form of chimneys with none of the ordinary vent pipes showing above the roof.

Co-operation Between Designers and Trades

A feature of this arrangement was that while the building was in the preliminary stage of design, it was agreed between the architects, the plumbing engineers and the heating engineers that by keeping all of these waste pipes on the outside wall and all vent ducts on the corridor end of the tables, an immense amount of conflict in both design and installation could be avoided. This was adhered to throughout the job and simplified matters immensely.

The supplies from a standpoint of economy, rise as mains at several advantageous locations and then distribute horizontally on the ceilings. Individual table supplies branch off from these runs. By using gang hangers for all these horizontal runs and keeping them far enough back from the windows to prevent shadows, their appearance is symmetrical and unobjectionable.

One of the principal points considered at all times was to have all waste and supply piping as accessible and as convenient to work on as possible. With this end in view, all this piping is exposed, excepting under tables. As each table requires individual piping, the waste pipe, wherever desk space allowed, is run above the floor, and all these tables were designed in advance by the co-operation of the architects and the mechanical trades engineers, with sufficient pipe space, and with table sections removable, so that piping underneath table tops can be made accessible, if desired.

Chemical Tables Determined Installation

These tables were carefully detailed throughout. As each chemistry course has its own particular requirements, it meant that each had its particular table design. Classroom tables were usually designed in units, and as a rule were double tables, that is, a dividing shelf runs down the length of the table and the students face each other while working on each side of the table. A unit contains the complete requirements of one student in each class consisting of services, drawers, working space, etc., and three units occupy one side of each double table giving a total of six students to a table. The requirements for these tables were specified by the chemical faculty of Harvard University.

The tables on the third floor of the Mallinckrodt laboratory presented some interesting problems.

The waste pipe runs above the floor in the space designed for it through the center of the table and the drawer space is in removable sections permitting the pipe to be exposed. The supplies run above the table top below a shelf to be used for the various chemical containers.

The supply pipes for these tables consist of hydrogen sulphide, illuminating gas, cold water, compressed air, steam and electricity. Vertical distances between these pipes were figured so as to permit sufficient space for cleaning, painting or working on the pipes and yet to keep the shelf over the pipe low enough to give an unobstructed vision over the shelf for the average student and have the containers on the shelf within easy reach.

The shelf supports were of either soapstone or wood 1¼ inch thick and designed with holes in them of proper size and correct spacing to permit using them as supports for the pipes. All these supplies were capped on the end away from the riser. The cocks for the various

services feed directly off the runs on to the units on each side of the table.

The special requirements on each of these third floor tables were two small double hoods for individual use, above the table, and four small chemical stoneware sinks with specially designed cocks with remote controls to allow as much space as possible in the sinks. To keep the supplies above the table top, the hoods were designed with a pipe space through the center to permit passage of these supplies and as these hoods require ventilation, the pipe space under the table was designed to provide room for the ducts from these hoods, and the waste pipe. The small sinks in these tables set entirely below the table top

Fig. 5—View of a set of hoods showing the remote controls in the bottom panel

and were of special size and drilling. These small sinks were designed to keep the cocks entirely within the sink, and at the same time provide required space for the filling and washing of beakers and retorts and test tubes.

These requirements necessitated the design of three special cocks with remote controls. One cock in each sink has a spout at 45 degrees. This permits filling large containers in the sink. Two other cocks with a gooseneck looking straight down are used for aspirator pumps.

The scheme of piping used in these third floor tables was generally followed in the class tables with variations in some details. In tables where no sinks were required and waste pipes need not be acid proof, an 1¼-in. iron waste pipe was run above the table top.

Location of Services

The order of supply pipes above the table top was arrived at on the following basis. Gas is the service most frequently used. For convenience, and economy of rubber tubing used from the outlet to the apparatus, this was selected as the lowest pipe where no other developments interfered. Cold water is next in demand. It was, of course, necessary to keep this below the steam pipe at all times to avoid sweating.

Compressed air usually runs above the cold water and below the steam. The electric outlet boxes are fastened to the underside of the shelf over the pipes.

Where space beneath the tables would not permit running the waste pipe above the floor, the waste pipe was run on the ceiling below.

Many of the tables require conical copper steam baths similar to those which have been used by Harvard University for over 40 years. In all cases, the plumber brought the condensate waste from these steam baths into adjacent sinks thus avoiding bringing live steam into the waste pipe system. These steam baths were located adjacent to the sink whenever conditions permitted.

The aspirator pump is used to a great extent throughout the laboratory. This pump is water operated. To facilitate the use of this pump practically all tables and hoods are equipped with at least one outlet for these pumps, with a male thread so that pump screws on the outlet. As these pumps operate on a continuous flow of water a waste outlet is installed for each of these outlets. In order to permit the free use of these aspirator pumps, outlets are installed at a sufficient height to permit the operation of the pumps, wherever it was thought they might be required, waste outlets are below these outlets giving the discharge a direct drop. All goosenecks are provided with threads on the outside to permit attaching an adapter for these pumps, and a smooth bore in the nozzle which gives a smooth flow to the water, a necessary requirement for the best operation of these pumps.

The arrangement in the professor's research laboratories differs from the class tables considerably. Instead of being free standing double tables, they consist mainly of a 6 ft. single wall table, a sink with a back, and a hood all arranged in the order named. This was considered a standard unit, and was known as a research inorganic unit. The standard unit was designed and then applied to all the professor's laboratories in Mallinckrodt laboratory.

As in class room tables, the supplies were run above the table, in hangers that keep them 2 inches from the wall to aid in cleaning and painting. They were continued back of the sink and back of the hood, and continued through hood and capped. The method of making these supplies accessible is described later under "Ventilating Hoods."

The hood waste runs directly back to the wall, then runs along the wall picking up the sink waste and running direct to riser. This arrangement gives a direct run on both waste and supplies and effected a considerable saving in fittings. As in classroom tables cocks were set in tee in horizontal supplies. Drawer sections are removable as in classroom tables allowing easy access to the waste pipe.

Wherever this research inorganic unit was used, the sink was set so that the edge of table overhung the sink by ¼-in. This gives the arrangement a very neat ap-

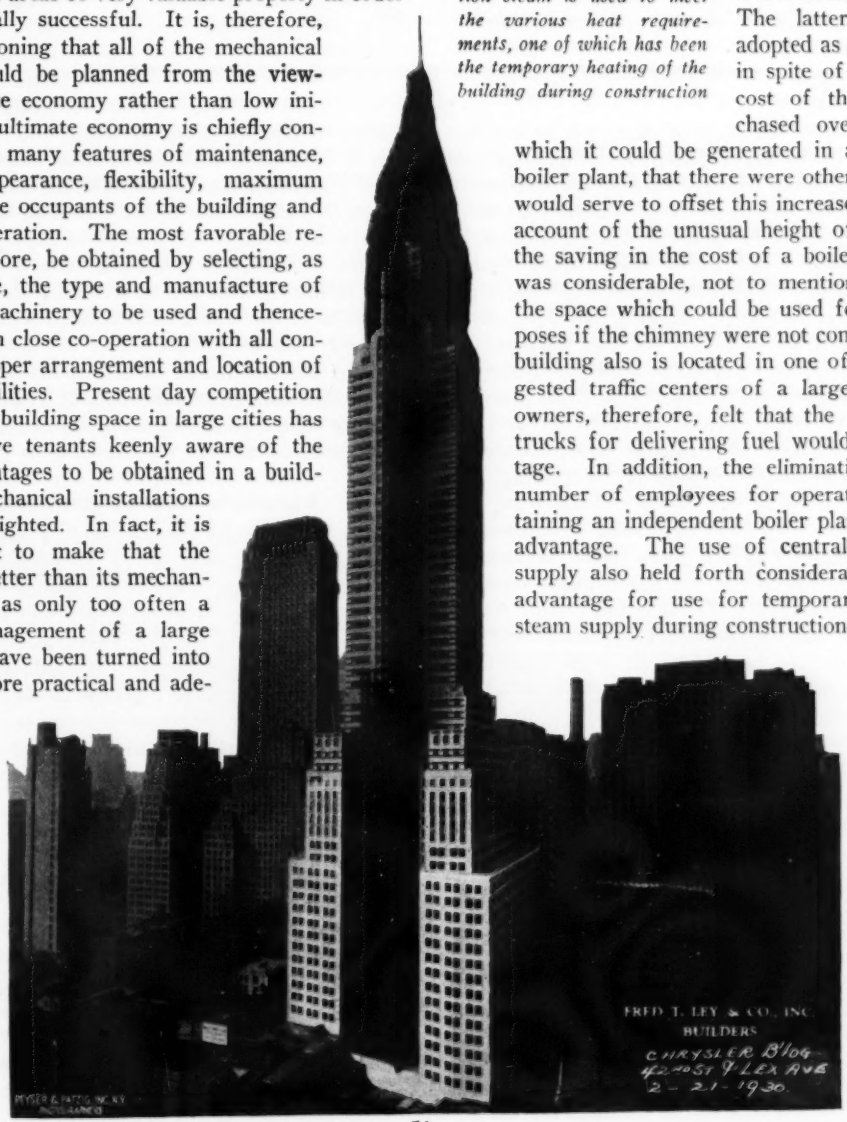
(Continued on Page 161)

Heating *The* Chrysler Building

By LOUIS T. M. RALSTON

IN THIS article an attempt has been made to set forth in brief style the important features that confront the engineer who is to design the mechanical installation in an exceptionally tall building. This outlines the various problems to be met as based primarily on the result of the preliminary study, design and construction followed in the erection of the Chrysler building, 43rd Street and Lexington Avenue, New York City, which at this writing is the tallest structure in the world.

Exceptionally tall buildings must of necessity be constructed on large areas of very valuable property in order to be commercially successful. It is, therefore, only sound reasoning that all of the mechanical installation should be planned from the viewpoint of ultimate economy rather than low initial cost. This ultimate economy is chiefly concerned with the many features of maintenance, accessibility, appearance, flexibility, maximum usefulness to the occupants of the building and simplicity in operation. The most favorable results can, therefore, be obtained by selecting, as soon as possible, the type and manufacture of materials and machinery to be used and thenceforth working in close co-operation with all concerned for a proper arrangement and location of all of these facilities. Present day competition in renting office building space in large cities has made prospective tenants keenly aware of the additional advantages to be obtained in a building where mechanical installations have not been slighted. In fact, it is a fair statement to make that the building is no better than its mechanical equipment, as only too often a loss in the management of a large building could have been turned into a profit with more practical and adequate planning and construction of mechanical equipment.



The world's tallest building has no chimney. Central station steam is used to meet the various heat requirements, one of which has been the temporary heating of the building during construction

Heating With Central High Pressure Steam

When selecting the source of steam for heating the world's tallest building, consideration was given to the installation of an independent boiler plant and also to the use of connections to the existing high pressure steam mains of the New York Steam Corporation. The latter method was adopted as it was believed, in spite of the increased cost of the steam purchased over the cost at which it could be generated in an independent boiler plant, that there were other factors which would serve to offset this increased expense. On account of the unusual height of this building, the saving in the cost of a boiler chimney flue was considerable, not to mention the value of the space which could be used for renting purposes if the chimney were not constructed. This building also is located in one of the most congested traffic centers of a large city, and the owners, therefore, felt that the elimination of trucks for delivering fuel would be an advantage. In addition, the elimination of a large number of employees for operating and maintaining an independent boiler plant would be an advantage. The use of central station steam supply also held forth considerable saving and advantage for use for temporary heating and steam supply during construction. Consequently,

independent mains in two different streets—one 10 in. in size and one 8 in. in size bring steam into the steam meter room at the lowest level of the building at 130 lb. pressure. These two mains were connected to a common header from which connections were taken through five flow meters discharging into a common header. The initial pressure of 130 lb. is reduced by stages into secondary headers carrying pressures respectively of 80 lb., 40 lb., and 5 lb. All of the piping work for the street service connections and all of the piping work in the meter room and the various headers was of welded construction throughout, except that flange connections were used at the meter connections.

The author's qualification of the statement, in his opening paragraph, to the effect that at this writing the Chrysler building is the world's tallest building, is significant. At the time of the coming convention of the Heating and Piping Contractors National Association to be held in New York City in June, some other edifice may rise to claim this distinction. In any event, the building is distinctive in itself and because of the successful handling of problems and individual requirements, will remain so for all time.

From the 5 lb. pressure header in the steam meter room, a circuit of steam mains was run in a pipe gallery in the lowest basement around the outside wall of the building to serve up-feed connections to all radiators on the basement, first, second and third floors. This portion of the building was planned to be used principally for retail stores and display rooms, which would probably have to be heated for longer periods than would office spaces. It was, therefore, desirable to have a separate provision for this purpose. A separate steam circuit was run in the same pipe gallery in the lowest basement from a connection with the low pressure header to serve up-feed connections for radiators on the 4th to 16th floors, inclusive, which comprised the lowest section of the office space of the building. The return mains for each of the above systems were also installed in the pipe gallery in the lowest basement. A circuit of steam mains was also taken from a connection of the low pressure heater in the steam meter room to serve air tempering stacks in the cellar fan room. As the level of this room was considerably lower than the steam meter room, the returns from these air tempering stacks were piped to a separate condensation pump, which in turn discharged the returns to the vacuum pumps serving the rest of the building.

From a connection with the 40-lb. pressure steam header in the steam meter room, a main steam riser, 4 inches in size, was run up through the building to supply steam to the heating coils in the hot water generators at the various levels throughout the building, as well as for heating the tank room on the uppermost level of the building. A separate 10-inch main riser connection was taken from the 40-lb. pressure header in the steam meter room, which ran up through the building to the 30th floor, where a series of pressure reducing valves were provided to reduce the pressure to 5 lb., and on the low pressure side of these reducing valves, separate circuits were run in the 30th floor pipe gallery to serve, respectively, the north and west sides of the building and the south and east sides of the building. These steam main circuits are used to supply steam to down-feed risers serving radiators on the 29th to 17th floors, inclusive, with the returns gathered together separately on the 16th floor ceiling, passed through condensation meters and continued to the vacuum pumps in the cellar.

The 10-inch medium pressure steam riser was reduced in size to 8 inches and continued upwards to the 60th floor pipe gallery space, where pressure was again reduced to 5 lb. and separate circuits run to feed the north and west sides of the building and the south and east sides of the building, above and below the 60th floor level. Steam was supplied to down-feed connections to supply the radiators on the 59th to 31st floor with the returns collected separately in the 30th floor pipe space, passed through condensation meters and thence to the vacuum pumps. Separate steam main circuits were used to supply up-feed connections to radiators from the 61st floor to the 75th floor, inclusive, with the return mains in the 60th floor pipe gallery, where the condensation was again metered separately and thence conducted to the vacuum pumps.

All of the steam and return mains were constructed with welded connections throughout. All risers throughout were constructed with screw connections, using extra heavy pipe and fittings for branches to radiator connections.

Automatic Control and Indicators

In addition to the hand-controlled gate valves on all of the several sub-divisions of the medium pressure and low pressure steam and return piping systems, pneumatic valves were also installed, which are operated from a push button control panel located in the basement chief engineer's office. Recording and indicating type thermometers were installed on all hot water generators and steam pressure gauges on high and low pressure sides of all pressure regulating valves with remote indications are located on a separate panelboard in the chief engineer's office.

All risers through the building were run concealed in furred spaces adjacent to columns on exterior walls. In the tower portion of the building, the risers were installed on one size larger pipe than would ordinarily be the case, as it was believed that the exposed location of these risers would cause a more rapid rate of condensation. All branches from risers to radiator connections were run concealed in horizontal wall chases in the exterior walls. All riser connections from steam mains were equipped with manually operated control valves and approximately one-half of the risers are con-

nected with pneumatically controlled valves from the chief engineer's office panel.

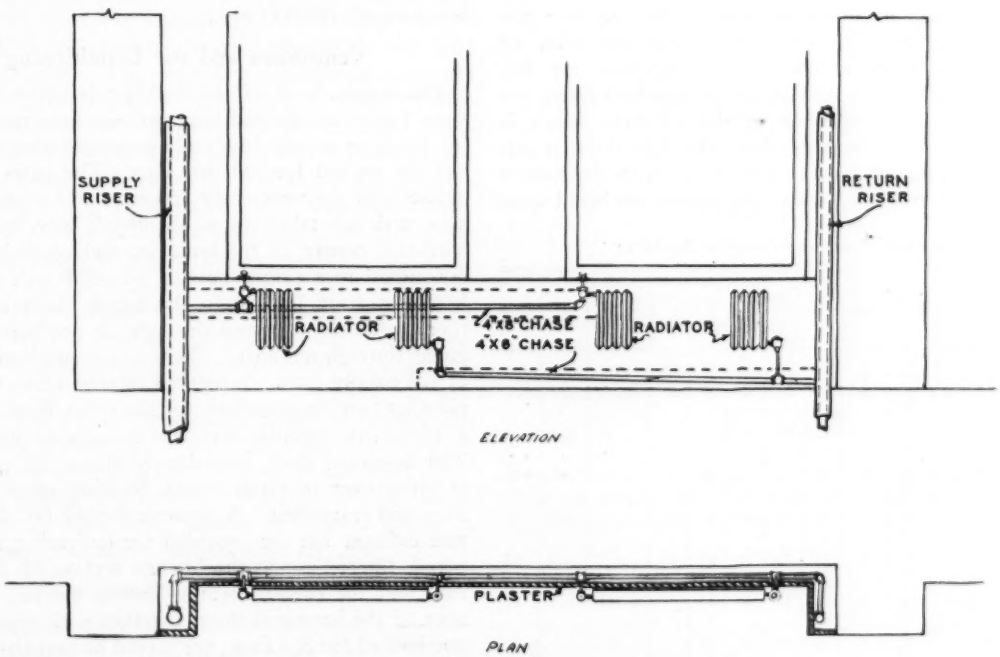
Three vacuum pumps were installed in the cellar, to which were connected all of the return mains from the several systems. These pumps were arranged in one duplex unit and one single unit, the combined capacity of the duplex unit being two-thirds of the load. The discharge from these pumps was carried through pre-heaters serving hot water generators for the lower section of the building located in the same room with the vacuum pumps. All medium pressure and high pressure drips and returns were conducted to a separate high pressure drip tank and thence to the vacuum pumps. The discharge from the pre-heaters was then passed through a condensate mixing tank thermostatically controlled and thence to the street sewer having a temperature not in excess of 100 deg. F.

Radiation and Unit Heaters

With the exception of the first floor entrance lobby, copper radiators with steel enclosures, window sill outlet grilles and extended stem direct control supply valves were used throughout the building. In the first floor entrance lobby, unit heaters discharging through ornamental grilles were used. Two of these heating and ventilating units were installed at each street entrance. The air was recirculated throughout the main lobby, which is three stories in height. All air tempering stacks over supply fans were of the low pressure type. One expansion joint was installed on the main medium pressure steam riser between the basement and 30th floor and one expansion joint between the 30th floor and 60th floor, on both the main steam risers and the return risers. Suitably spaced expansion joints were also installed on all low pressure risers. All expansion joints are accessible through large access doors. It might be added at this point that throughout this building there are no open pipe shafts over one story in height, that is to say—the floors have been carried through all pipe shafts to eliminate all danger of fire hazard in these spaces. All control valves used on any portion of the steam piping system throughout are brass stem, gate valves of the 175-lb. pattern on lines carrying 40 lb. and less, and of the 250-lb. pattern on lines carrying pressures in excess of 40 lb. The valve chart for this building has been put in the form of a pocket size pamphlet, which, in addition to giving all descriptions, locations and purposes of the valves, also contains complete information on location, size and capacity of all vacuum pumps, hot water heaters, compressors, tanks, pre-heaters, fans, motors and a general description of the arrangement and control of each of the several heating systems.

In addition to the gauge board, containing the distant recording and indicating equipment in the chief engineer's office, supplementary gauge boards are also installed in the 30th and 60th floor pipe spaces for indicating the steam pressures, temperatures, etc., for the equipment located in these spaces. All gauges, clocks, indicating devices, air piping, etc., exposed to view in the steam meter room and chief engineer's office, are finished in chromium plated metal to match the exterior trim, which has been used on this building.

Five hot water generators are used to supply hot water for the fixtures used in this building. Two of these heaters are located in the cellar steam meter room —one to supply hot water for all outlets up to the 3rd floor inclusive, and one to supply hot water for all outlets from the 4th to 23rd floors, inclusive. The 25th floor heater supplies from the 24th to 45th floors inclusive; the 47th floor heater supplies the 46th to 59th floor inclusive, and the 60th floor heater supplies the



All of the steam and return mains were constructed with welded connections throughout and all risers were constructed with screw connections

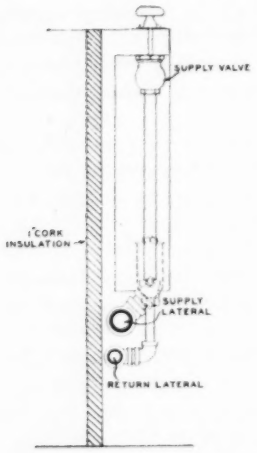
60th to 75th floors, inclusive. The three uppermost heaters have a heating capacity of 300 gallons per hour, the low level heater in the cellar a heating capacity of 450 gallons per hour and the intermediate rise heaters in the cellar, a heating capacity of 725 gallons per hour. All heating capacities are based on the temperature rise of 140 deg. Fahr. with steam service at 40 lb. gauge.

Sizing of Radiators

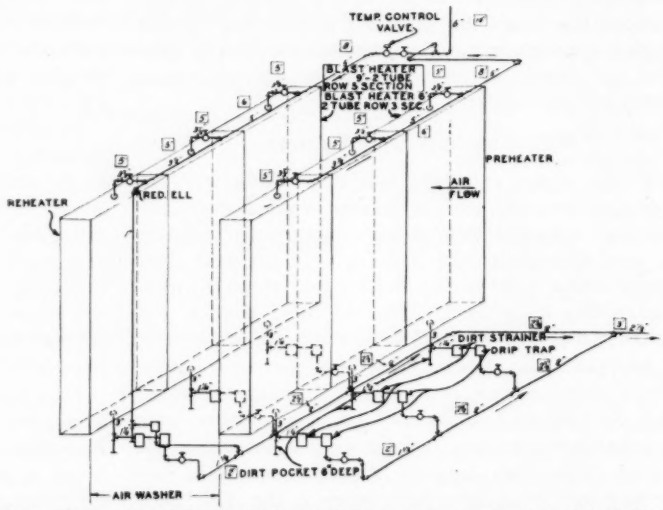
In computing the sizes and distribution of radiators for this building, particular attention was given to the flue action caused by the height of the building and the numerous large elevator shafts. This served to greatly increase the size of all radiators up to the first pipe gallery level on the 30th floor, but above this level no addition was made to the size of radiators for this cause. All main corridors of all intermediate floors are heated. The tower portion of the building, which is that portion of the building above the 30th floor, is calculated for radiator sizes in accordance with the factors set out in the following table; the factors are based upon a heat emission of 240 B. t. u. per square foot of radiation per hour, with a final inside temperature of 70 deg. Fahr. with an outside temperature of 0 deg. Fahr.

The two figures indicated under "Wall" refer respectively to the insulated and uninsulated sections of the exterior walls. The three percentages listed under the column headed "Wind" are respectively—north, west and east. The column headed "T. D." is for through draught effect.

The total direct equivalent radiation load in this building is 135,500 sq. ft. for direct radiation and an additional direct equivalent of 44,360 sq. ft. for air tempering stacks and air heaters, making a total direct equivalent load of 179,860 sq. ft.



Detail of radiation unit hook-up used from the seventeenth to the sixty-sixth floor inclusive. Note that insulation is used on the outside wall in back of the radiator



Connections around heater for one of the systems used. A note indicates that if the first floor and part of the second floor are air conditioned, the figures shown in the squares should be used

Heating Factors—Chrysler Building

	Wall	Glass	Exp. N %	Exp. S %	Exp. E %	Exp. W %	Flue Action %	Wind	T.D.	Roof
1st Floor	10	3	25	0	5	10	30	.....	.....	.....
2nd-10th Floor	10	3	35	15	25	35	30	.....	.....	.....
11th-16th Floor	10	3	35	15	25	35	20	.....	.....	.....
	10									
17th-18th Floor	30	3	35	15	25	35	15	.....	10%	
	10									
19th-23rd Floor	30	3	35	15	25	35	15	.....	10%	13
	10									
24th Floor	30	3	35	15	25	35	10	.....	10%	13
	10									
25th-26th Floor	30	3	35	15	25	35	10	.....	10%	13
	10									
27th-29th Floor	30	3	35	15	25	35	....	15–10–8	.....	.....
	10									
31st-54th Floor	30	3	35	15	25	35	....	15–10–8	.....	.....
	10									
55th-Top Floor	30	3	35	15	25	35	....	15–10–8	.....	.....

Ventilation and Air Conditioning

The lowest level of the building is given over to a large fan room divided into two sections, namely—one for fresh air supply fans and air conditioning apparatus, and the second for exhaust fans. The main fresh air intake is of approximately 150 sq. ft. of cross sectional area with air taken in at the third floor level at the northeast corner of the building, and carried vertically downward to a tunnel cut out of solid rock under the basement floor leading to the supply fans in the fan room. All air is passed through air pre-heaters before going through automatic filters to air pre-heaters ahead of the supply fans. Tempered filtered fresh air is supplied by two separate fans for the cellar floor, each with a respective exhaust fan for exhausting cellar floor. The basement floor immediately above the cellar floor is given over to retail stores, banking space, a barber shop and restaurant. A separate supply fan and a separate exhaust fan are provided for delivering fresh tempered, filtered air to the kitchen section of the restaurant and for exhausting the kitchen section. The balance of the basement floor, together with approximately one-half of the 3rd floor, are served by two air-conditioning units.

In the 30th floor pipe gallery, two exhaust fans are

provided for exhausting all toilet rooms and slop sink closets from the cellar to the 29th floor inclusive. In the 30th floor pipe gallery, an exhaust fan is provided for exhausting air from all the pump rooms and elevator machine rooms between the 13th and 29th floors inclusive. Other fans in the 30th floor pipe gallery are for exhausting air from elevator machinery rooms from the 25th to 29th floors, inclusive, a supply fan for providing special tenant requirements on the 26th to 29th floors inclusive, and an exhaust fan for this system. The other exhaust fans are placed in the 60th floor pipe space for handling elevator and machine rooms and pump rooms above the 30th floor, toilet room and slop sink closets above the 30th floor. In the cellar fan room, an exhaust fan is provided for the refrigerating machine room. Other exhaust fans are located on the 74th floor for exhausting air from toilet rooms, machine rooms, etc., above the 60th floor.

The kitchen space exhaust and the kitchen range hood exhaust are discharged at the 74th floor into the fire tower court. Machine room, toilet room and slop sink exhausts are discharged at the 30th floor and 60th floor respectively. Each fan on any of these systems discharges in a horizontal direction to two opposite sides of the building so that prevailing winds will not interfere with efficient exhaust. General cellar exhaust and refrigerating machine room exhaust are discharged on the large roof at the 4th floor level. Future connections and foundations have been provided on the 67th floor for air conditioning purposes to ventilate a proposed club and restaurant at this level.

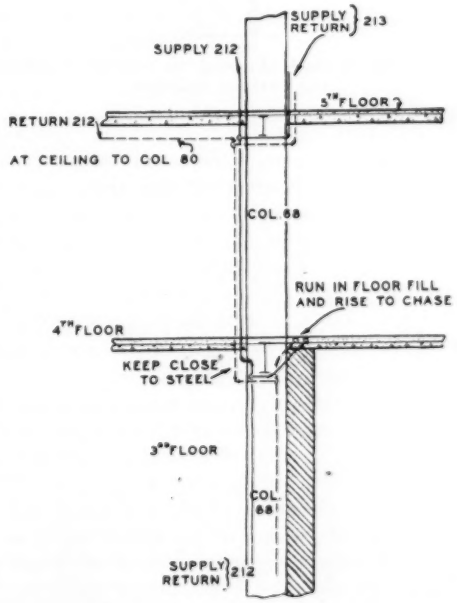
All duct work throughout, is constructed of galvanized copper bearing steel sheets. All air intake and discharge louvres are constructed of 20-oz. hard copper and supplied with ½-in. copper mesh screens constructed of No. 8 B. & S. copper gauge wire. Supply fan connections to the main fresh air intake tunnel have separate galvanized rolling iron shutters. All duct connections to fans are of extra heavy gauge metal and final connections made with canvas. All fans and motors are mounted on specially designed and constructed frame foundations, made of 6 in. by 6 in. timbers over which is laid a 2 in. thickness of cork. All fan motors are A. C. Each fan room on every level has its independent switchboard, starters, speed controllers, etc., and a separate panel is mounted in the basement chief engineer's office indicating which fans are in operation.

At this writing, the installation of the ventilating apparatus is practically completed, and the preliminary tests, which have been conducted, indicate that the results are very close to the original calculations and requirements.

All ducts carrying tempered air, or conditioned air, are suitably insulated, 85 per cent magnesia covering being used in general on all portions of the steam supply piping system and finished with sewn canvas jacket. The coverings have been painted in suitable colors to distinguish the separate systems and services.

Sound-proofing of Equipment

Particular and detailed attention was given to the design and construction of all foundations and enclosures adjacent to tenant spaces for all fans, pumps, elevator machines and any other equipment, which would cause noise or vibration. The rear walls of all elevator hatchways adjacent to possible office space were constructed with 6-in. hollow tile blocks on the outside wall of which, was a 2-in. air space and another wall of 4-in. hollow tile blocks over which was placed a 1-in. thick layer of insulating material and then the plaster finish applied. It is impossible in any office space, adjacent to elevator shafts, to detect any noise from the passing of elevators or counter weights. All elevator machine rooms, or pump rooms, located outside of the pipe gallery floors are equipped with double entrance doors fitted tightly to the door opening at all points. In addition, the floors, walls and ceilings of these rooms are constructed as described above for the elevator hatchways to prevent any sound emanating from them. The elevator machinery itself is further mounted on heavy concrete foundations with cork mats at all bearing points. As described in the ventilating section of this article, special heavy frame foundations with cork mats were used for all fans in addition to greatly increasing the gauge of duct work at all fan connections. Intermediate floor house pumps are in rooms constructed similar to elevator machinery rooms with similar type of foundations. Vestibules are provided at entrance to all general toilet rooms and walls of general toilet rooms greatly increased in thickness. All flushometers have been carefully adjusted so as to operate with a minimum of noise. Special considera-



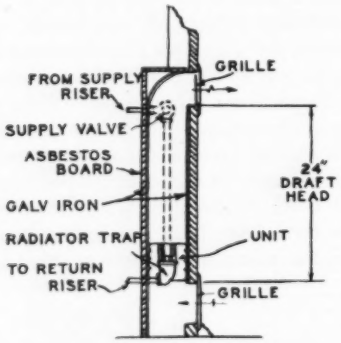
This detail shows the method of running risers around one of the columns

tion, as well as preliminary investigation and test, were made on several different types of steam pressure reducing valves with a result that the valves as installed operate without any noise whatsoever.

Insulation

All pipe lines, tanks, ducts, machinery and equipment have been covered with the best quality of non-conducting insulating materials to reduce thermal losses to a minimum. All pipes are independently covered and

where exposed to view are recanvased with eight ounce canvas sewn on over rosin sized paper and painted distinctive colors to indicate the respective services, and, in addition, are stenciled at frequent intervals with the name and purpose. All pipe sleeves through floor arches are filled for the entire depth with asbestos fibre loosely rammed. Extra heavy built-up covering has been used on all pipe lines exposed to outdoor temperatures, or pipe passing through heating and fresh air chambers. Also special types of built-up covering have been applied on all pipes in tunnels, trenches or partially excavated spaces. Cold water supply piping throughout the entire building, except branches run in floor fill, are covered with 1-in. thick tar lined, wool felt, sectional pipe covering. All hot water circulating pipe throughout the entire building, except branches in floor fill, are



A detail of the method of installing concealed radiators in the Chrysler building

covered with 1-in. thick asbestos lined wool felt sectional pipe covering. All pipe, fittings and flanges of the ice water drinking system are insulated with ice water thickness of cork wired on with copper tie wires and joints sealed with water-proof cement, and exterior surfaces painted with heavy black asphaltum paint. Fire standpipes are covered as required by the city code. Wherever cold water piping is adjacent to steam piping, it has been covered with built-up covering the same as piping exposed to outdoor temperatures.

All horizontal runs of soil, waste, drainage and leader piping located in pipe galleries or concealed in furred ceilings, has been covered with built-up hair felt covering and finished with a canvas jacket.

All tanks have been insulated on the top and sides, but not the bottom, with 1-in. thick cork sheets securely wired on with copper tie wires and with all joints sealed with water-proof cement and finished with a ½ in. thickness of asbestos cement. Hot water storage tanks are insulated with 2-in. thickness of 85 per cent magnesia blocks finished with a ½ in. thickness of 85 per cent magnesia cement. All traps, drip tanks and receiving tanks have been covered in a similar manner. Refrigerating machinery room piping has been covered with brine thickness of cork.

Where the main fresh air intake tunnel is in contact with heated rooms, it has been insulated with a 2 in. thickness of 85 per cent magnesia blocks over a 1-in. air space and finished in plaster. Air re-circulating ducts from lobby unit heaters are insulated with 1½ in. thickness of 85 per cent magnesia blocks finished with a ½ in. thickness of 85 per cent magnesia cement. Connections from air intake tunnels and supply blowers and heater casings, are covered with a 2 in. thickness of 85 per cent magnesia blocks finished with ½ in. of hard cement. All ducts and branches, carrying tempered air, are insulated with 1 in. thick air cell blocks finished with ½ in. thickness of asbestos cement, and where exposed to view, have an 8-oz. canvas jacket sewn on. Exhaust air ducts, carrying high temperature air, such as kitchen exhaust and elevator machine room exhausts, are covered in a similar manner, as are any supply ducts in contact with outside walls of the building or in contact with the main fresh air intake tunnel. Duct work in connection with the air conditioning system, including dehumidifiers, fan connections and casings, is covered with a 1 in. thickness of cork board insulation with joints filled with water-proof cement and finished with a ½ in. thickness of asbestos cement and wherever such duct work is exposed to view, is finished with an 8-oz. cover jacket sewn on.

High pressure steam piping is covered with 2 in. thickness of 85 per cent magnesia sectional pipe covering and reduced high pressure steam piping with 1½ in. thickness of 85 per cent magnesia sectional pipe covering. All flanges on high pressure and reduced high pressure piping are insulated with the same material with permanent type flange covers. All low pressure steam piping is covered with standard thickness of 85 per cent magnesia sectional pipe covering. All low pressure steam risers and radiator branches are covered with 1 in. thick asbestos sectional pipe covering. A double thickness of covering is used where any steam or return piping passes through refrigerating rooms or is otherwise exposed to unusually cold temperatures.

◆

Relation Between Heat and Work

The commonly accepted mechanical equivalent of heat is 778 foot pounds = 1 B.t.u.

To express a relationship between heat and horsepower it is necessary to designate the period over which the power is measured.

Problem: Find the heat equivalent of 12 horsepower hours.

Computations:

1 horse power is defined as 33,000 foot-pounds per minute.

To maintain a rate of one horsepower for one hour it would be necessary to perform.

$60 \times 33{,}000 = 1{,}980{,}000$ foot-pounds of work in one hour since there are 60 minutes in one hour.

$\frac{1{,}980{,}000}{778} = 2545$ B.t.u. of heat in one hour. This is the heat equivalent of one horsepower hour.

Then the heat equivalent of 12 horsepower hours will be $2545 \times 12 = 30{,}540$ B.t.u.

◆

Definition of Viscosity

VISCOSITY is that property of a liquid which resists any force tending to produce flow. It is independent of specific gravity and is usually expressed as the time required for a definite volume of liquid to flow through a given size and shaped orifice under a known head.

Would You Accept This Offer?

10% on labor on a string of thirty houses — Can a plumbing and heating contractor take such a job safely?

A. J. PEEL, an accountant familiar with the industry, and three plumbing and heating contractors answer the question

ONE of the subscribers for DOMESTIC ENGINEERING has been approached by a general contractor with a contract to install plumbing and heating in a group of thirty duplicate residences on the basis of 10 per cent on his labor. Among the arguments advanced by the general contractor to induce the plumbing and heating man to accept the opportunity were these: That work was slack, and that such a contract would enable him to keep his organization together; that he had to pay his men anyway, and might as well make "ten per cent clear money" on their labor; that the interests back of the work were sound and would pay promptly, and, finally, that he was foolish to turn down the offer.

He did turn it down, of course, but in submitting the situation he suggested that others might not, and that, therefore, he would be interested in having an authoritative answer, which he might quote to others who would undoubtedly be approached.

A. J. Peel Replies

DOMESTIC ENGINEERING referred the matter, first, to A. J. Peel, whose articles on accounting have been appearing in these columns, and who is thoroughly familiar with the building industry. It was also referred to a number of prominent contractors. The answers will be published in this and an article to follow. Here is what Mr. Peel has to say about the offer:

Net profit is the difference between total cost and selling price. This is so well known that it is almost superfluous to state it. Yet the necessity of a clearer understanding of this primary consideration still seems to be evident. For example, it should be clear that the contractor who takes a contract on the basis of 10 per cent of labor cost, is not going to make a 10 per cent profit, and for a very good reason—the 10 per cent on his labor must cover other direct expense and also his overhead expense. If there is anything left when these are taken care of, that only is net profit.

It may be that we have not got the whole story in the above inquiry, but, frankly, I do not see how any plumber can make a profit on the basis stated, assuming that this is 10 per cent on his labor cost. If it is on a labor charge, and this is figured on the common practice of doubling the labor-hour cost, then he may get something out of it, though even this is doubtful.

However, perhaps a detailed discussion of how to figure profits on different classes of work, will be more helpful than restricting ourselves to an analysis of one system or case.

Figure Profit As You Go

I would like to emphasize, at this point, the importance of developing profit or loss as the job progresses and not waiting until it is completed. I refer, of course, to contracts the completion of which takes time; such a contract as that mentioned by our correspondent. This, however, can be done only if it is possible to add to the prime cost of operations—labor and material—the burden or overhead cost. Even with those plumbers who adopt the "100 per cent list price" method for materials,

DATE 1930	SOURCE OF ENTRY	TOTAL CHARGE TO CUSTOMER DR	% REC	ALLOWANCES CR	% REC	DISTRIBUTION OF COST: PAYROLL CR	MATERIAL CR	OTHER DIRECT EXPENSE CR	TOTAL DIRECT EXPENSE	APPLIED OVERHEAD 10% CR	TOTAL COST TO DATE	LOSS DR	GAIN CR
Apl 4	Labor Cost plus 10%	740 00				400 00	300 00	— —	700 00	70 00	770 00	30 00	
" 11		650 00				500 00	100 00	20 00	620 00	62 00	682 00	32 00	
" 18		410 00				300 00	70 00	10 00	380 00	38 00	418 00	8 00	
" 25		150 70				137 00	—	—	137 00	13 70	150 70	—	—
		a				b	c	d		e		f	g

and also treat their labor cost in the same way, the actual profit made on any job or contract cannot be accurately figured without an accurate knowledge of overhead expense, and the apportionment of such expense on a percentage basis, to each individual job and contract.

There are several ways of applying overhead expense to jobs and contracts. First of all, we must determine what method is best suited to our particular business. The percentage that the total overhead expense for one year, say, bears to the total sales for the same period, is one method. The percentage that overhead expense bears to the total cost of labor and material, is another. The percentage that overhead bears to labor only, is another. Considerable difference of opinion exists as to which is the better plan for the plumber. The Bureau system recommends the apportionment of overhead on the basis of selling price.

Accurate records of labor cost are of course quite essential. I am not going to discuss various forms of time-sheets here because we must assume that the reader of this article has a good working time sheet. The recording of material purchased for contracts, for stock, and used, is also another subject which we cannot discuss at this time.

But the form on which these various costs are collected, and on which overhead and profit are figured, is a vital record in this connection. In the form shown here we have a simple accumulation of those essential factors which make up the history of any job or contract.

It will be noted that the costs are distributed under two main divisions, first the direct costs—Labor, Material, and Other Direct Expense; then to this is added the applied overhead, which, with the other costs, provides us with a total cost. Deduct this from the total charge to the customer, and you have the profit, or, if the cost exceeds the charge, the loss on the job.

The figures used for illustrative purposes are entirely fictitious, and I have used them to illustrate just what would happen under ordinary circumstances, if a contractor undertook a contract on the basis of 10 per cent on his labor cost, assuming that he charged his client for material only what it cost him. Even with an overhead of only 10 per cent of his combined material and labor cost—and this is impossible in the plumbing industry—he would lose money on that basis. Let us suppose, however, that his labor charge is double his labor cost, and that he charges an additional 10 per cent to his labor charge, then he would make money; suppose we adopt a more reasonable rate for overhead, say 30 per cent, then his total cost would be $910 as against a charge of $1,180 ($400 more for labor). This would give him a profit of $270 on all completed work to April 4.

This method of accumulating profit and loss as the work progresses is a good one, and enables the contractor to rectify and adjust costs before it is too late.

Distribution of Costs

The relation of this form to the general ledger accounts is simple. The weekly totals in column "a" are posted as debits to the customer's account and to the Accounts Receivable Control account, if desired. Or, these need not be posted until the completion of the job. The items in column "b" are credited to the payroll account—that is, the account to which all payrolls are charged from the cash journal. Theoretically, the credits in this account will clear the charges, assuming that all labor is productive and is chargeable to clients and customers.

The material in column "c" is credited to the "Material Used" account, the account to which is charged all material purchased for contracts, and taken from stock for use on contracts and jobs. Other "Direct Expense" is credited to the account of that name which shows all charges to contracts and jobs which cannot be charged under either "Labor" or "Material."

The "Applied Overhead Account" (column "e") is a credit account only. It is not the credit column of the Overhead Expense account. Theoretically, the total of this account should equal the total of all overhead accounts. Actually, of course, this never happens. But if the variance is considerable one way or the other, then it means that the percentage of overhead charged to contracts and jobs must be adjusted so as to more nearly absorb all the expense incurred. The balance between "Overhead Expense" and "Applied Overhead Expense," at the end of the year is debited or credited to the "General Profit and Loss" account.

The items shown in "Loss" and "Gain" columns are posted to profit and loss (contracts) account, or profit and loss (jobbing) account, when the contract or job is completed. That is to say, these columns are totalled, and the totals only are posted to the general ledger accounts indicated above.

In cases where no charge is made or determined until the work is completed, it naturally follows that no loss or gain can be recorded until the work is billed; but the procedure is the same in the end. With set fee contracts there is no object in showing progressive loss or gain. This can be determined when the work is completed.

The form shown here can be furnished with a visible-index binder, together with job cost forms, if desired, at a reasonable cost. Any readers interested in securing these forms can write to the editor of this magazine.

Comments by William Haas, Walter Klie and J. L. Murphy

This matter, as stated above, was also referred to a number of plumbing and heating contractors. Their replies are given below. Here is what William Haas, of The William Haas Co., Dayton, Ohio, writes:

"Your letter of the 4th inst. at hand. The question evidently covers a hidden motive and I am frank to admit that I can not answer it. He certainly must have an overhead. From a business standpoint, who would want to take labor on a 10 per cent basis, unless he wanted to get rid of a bank balance or let his creditors suffer the consequences when they did sell him."

Mr. Haas leaves no doubt, of course, as to the appropriate course to be followed. Walter Klie, president of The Smith & Oby Company, Cleveland, Ohio, is equally emphatic when he writes:

"We make it a practice of figuring our overhead over a period of three years average in two ways; one with its relationship towards total volume of business done, and one with its relationship towards the total amount of productive labor employed.

"I think that the plumbing and heating contractor who figures on the basis of 10 per cent on his labor would

(Continued on Page 88)

PLUMBING & HEATING MERCHANDISING

Remodeling
—a way to profit

National attention being focussed on developing modernizing program

Minneapolis beats building slump with a successful remodeling campaign

Fenton B. Turck, Jr., chairman, National Building Survey Conference

ON October 15, 1927, in the "Plumbing and Heating Merchandising" feature section, DOMESTIC ENGINEERING called to the attention of the industry the possibilities of remodeling work, in these words: "If opportunity for profitable business expansion ever presented itself to an industry, it has now come to the plumbing and heating industry in the form of remodeling work." That entire feature section—the first of many—was given over entirely to a study of how to go about "Selling the Remodeling Job." This, in spite of the fact that the following two years—1928 and 1929—were to turn in impressive totals in the way of new construction.

Within six months of the publication of that feature section, which was followed by many other articles, and by talks made by representatives of this publication in various parts of the country, a representative group of men in the building industry met in Chicago to set up the machinery for a national modernizing campaign. Walter J. Kohler, president of Kohler Co., was elected president, which office he resigned when elected governor of his state.

The situation which DOMESTIC ENGINEERING anticipated has now reached what is probably its full development. New construction has fallen off sharply; plumbing and heating contractors are faced with the necessity for doing something to "take up the slack"—and, obviously, that something must represent a profitable opportunity. It cannot consist of accepting work on which there will be no profit—work offered in some cases on which the contractor is to figure the labor only, with ten per cent added to his labor cost.

The plumbing and heating contractor must do what other business men have had to do when they found the familiar course of their business blocked—they must create new business. Now, they cannot force new construction. Hence they must turn to existing structures. They must approach the owners of homes, the owners of apartment buildings, of hotels, of office buildings, of industrial buildings. For the remodeling opportunity is as wide and as varied as are the types of buildings in any community. It is not limited to homes—in fact, there await the alert contractor-salesman even larger opportunities, some of which will be touched upon later.

First, the plumbing and heating contractor should take note of the efforts being made on a national basis to stimulate the building industry. The nation's leaders, President Hoover among them, recognize that this

industry is the balancing factor in national prosperity. As one outstanding financial man said: "The difference between a good volume and a poor volume of building is likely to be the measure of the difference between widespread prosperity and restricted prosperity."

Remodeling Financing

As an outgrowth of the President's conference on the stabilization of business came the National Building Survey Conference, the chairman of which is Fenton B. Turck, Jr., vice president, American Radiator & Standard Sanitary Corporation. Later, further attention will be given to the work of the conference. For the present, with direct reference to remodeling, Mr. Turck's announcement at one of the recent sessions of the annual meeting of the United States Chamber of Commerce, held in Washington, D. C., is of particular interest:

"A new contribution to the finance structure of the building industry was announced by Fenton B. Turck, Jr. This will take the form of quickly diverting commercial funds to repairs, improvements and alterations to buildings, particularly to residential buildings, and will be non-competitive with existing construction finance agencies. The setting up of machinery to facilitate financing of repairs, remodeling and general modernization operations aims at one of the weakest spots in the construction field, and at one of the outstanding causes of periodical unstabilized conditions in the entire economic structure of the country, the seasonal peaks and hollows in the construction and employment curves. By encouraging modernization operations, and by making available commercial money for this purpose, the peaks in construction are expected to be flattened out.

"According to the United States Census, there are sixteen million homes in this country in need of repair and remodeling. Every year these have depreciated. The average home owner would like his home to be modern, clean and attractive. However, under financing methods now available, it is most difficult to obtain funds for such activity.

"By bringing modernization abreast of the times, work will be provided for the seasonal lull periods where the building trades now find their lowest measure of employment. This would measurably contribute to the stabilization of the building industry and benefit all commerce."

As evidences of a practical application of the modernizing idea, we give in the following pages the results achieved in Minneapolis, Minn., and the results achieved by one plumbing and heating contractor along unusual lines; ample proof of the profitable opportunities awaiting the contractor who interests himself in remodeling.

Minneapolis Beats Building Slump

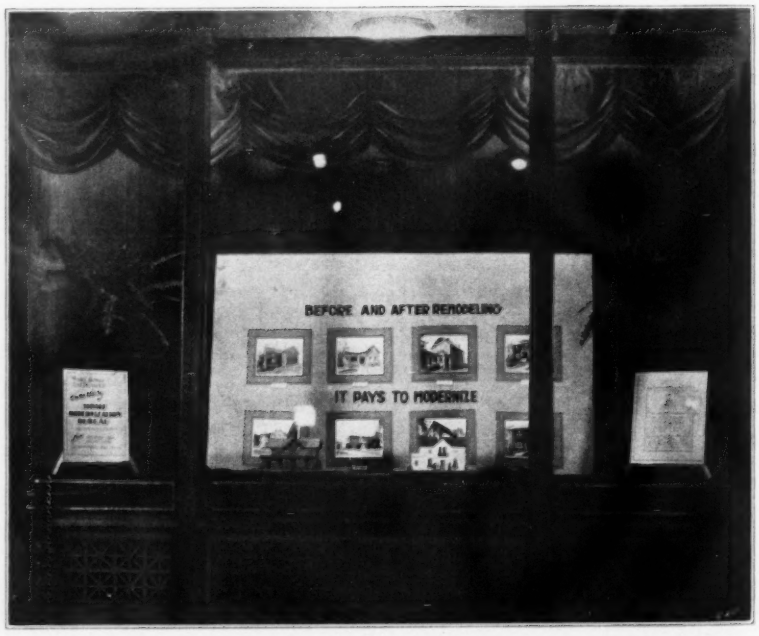
Remodeling Program Brings Increase in Total Building

By
MRS. EDNA KNOWLES KING

IT is expected that more than $4,000,000 will be expended in modernizing in Minneapolis in 1930, largely due to the efforts of the Home Modernizing Bureau, organized over a year ago by the building, savings and loan, commercial and civic leaders.

The Home Modernizing Bureau has as its aim the advancing of housing and living standards through the modernization of existing homes both in modern structures and through the conservation of capital of these structures and their maintenance in a more salable status. Home owners are furnished with unbiased, reliable suggestions for modernizing.

The Home Modernizing Bureau performs two services: it renders a free, architectural, visualization service whereby the property owner may see how his home may be improved and what it will look like after it is modernized, and it puts him in direct contact with financial aid.



Displays like this put over remodeling sales in Minneapolis

The Bureau is a non-profit, personal service Bureau, making no charge whatever for any service rendered.

The directors of the Bureau are representatives of various branches of the building industry, among them: Lou H. Johnson of the L. H. Johnson Plumbing Co., C. D. Rye of

"In the case of all the remodeling jobs which we have seen, where thought has been exercised, we find that certain blocks improved in appearance no matter what the surroundings might be when the job was completed. Following is a very definite example: A man having a four-family building, which property had become run down, not outside, as much as inside, to the extent that the loan people who had a loan coming due would not renew their loan on the same basis, saying they intended to cut out the loan.

"The modernizing in this particular instance consisted of taking out the four coal-burning furnaces in the basement, putting in one boiler sufficient to heat the property. They put in automatic oil burner equipment, starting in the basement, cleaning the same up and going through the entire property. This work was all done in less than two months. Then the loan people made the second check on the property, which property had been rented in the meantime. They renewed the loan for the added improvements and ninety days later the property was sold."

F. W. GRATZ,
Chalmers Burner Sales Co.,
Minneapolis.

the Crane Co., and F. W. Gratz of the Chalmers Oil Burner Sales Co.

Among those who make it possible for the Bureau to offer its free service, as they contribute toward its overhead, are: Eagle-Picher Lead Co., Chalmers Oil Burner Co., Hubbard Oil Burner Co., Johnson Oil Burner Co., Silent Automatic Sales Corp., Wholesale Plumbers' Supply Dealers, Belden-Porter Co., Hineline & Company, Huston & Co., L. H. Johnson Co.

Several new "kinks" are to be tried out in advertising in the Bureau this coming year. Tentative plans include talks over radio stations, showing of modernizing films in the Minneapolis theatres and organizing home beautifying clubs. All of this is in addition to billboard, newspaper, magazine advertising.

"Would say we are very much in favor of the Home Modernizing Campaign, and have contributed to the Bureau in our city last year and this year. We believe it offers the best possible field for those who work it intelligently."

GEO. W. HINELINE.
Hineline & Company, Minneapolis.

This Minneapolis home was of frame construction—before it was completely remodeled

"Home Modernizing in large cities is not only a wonderful thing from a civic point of view, but is also fundamentally sound. It matters not whether an owner expects to retain a property or not. Remodeling and keeping a home up to date and in good condition, represents a very sound investment in any locality. Some people have the erroneous idea that modernizing should not be encouraged as it might affect the volume of new building. If this was a fact, the real estate boards would not be in favor of modernizing and remodeling homes. On the contrary, they are interested in seeing this work done because it represents an added value to improved property adjoining or unimproved property being offered for sale for building purposes.

"The figures available in Minneapolis through our Home Modernizing Bureau show the results of the home modernizing idea as carried out through the bureau and other activities last year. It is to be regretted that this movement does not have more genuine support as, of course, every individual represented in the building industry must benefit in some way.

C. D. RYE, *Manager*,
Crane Co., Minneapolis.

Remodeling Increases Building Total

Figures gathered from the Builders Exchange report prove that in Minneapolis the building industry will do well to look to Home Modernizing for profits. Last year in Minneapolis there was an actual drop in construction of new buildings of all types of $1,557,315 as compared with 1928.

On the other hand, there was an increase in additions and repairs of $1,596,700, thus making a balance in favor of 1929 of $39,385. In 1928 $2,207,085 was spent for modernizing work, and in 1929 the figure advanced to $3,804,385. The building and material men were so impressed with these figures which demonstrated the value of the home modernizing work that they are determinedly pushing the campaign this year.

The writer agrees with O. W. Rosenthal, president of the Associated Building Contractors of Illinois, when he says, "There is no construction industry. We're just a bunch of loose ends." Mr. Rosenthal made this statement in a heated argument in the closing hour of the National Building Survey Conference, Chicago, March 27. The local home modernizing bureaus give the building industry in which they are situated an opportunity to make a bid for modernizing. The past few years has seen nearly a hundred modernizing bureaus start up here and there

A Cinderella among houses in Minneapolis,—before it was remodeled

in the U. S. Many of these have closed up after struggling along for a period of months. Those remaining have, in nearly every instance, grown more vigorous as time passes.

An industry as steeped in traditions of independence as the building industry is not accustomed to united action, nor is it possible to transform such an industry into a disciplined army of co-operators. Many thinking men in the building industry see in the home modernizing bureaus an attempt at unified advertising—advertising that is bound to create jobs, and are giving the movement their support, consequently.

It has been remarked of late that the potential market for home modernizing is enormous, running far into the billions. As yet, no organization seeks to cultivate this market nationally.

Although the Home Modernizing Bureau of the National Building Industries, located in the Builders' building, Chicago, backed by forty-seven building industrial associations and manufacturers, has been inadequately supported, it has succeeded in stimulating and initiating modernizing in many cities. Although some of the modernizing bureaus established by the national bureau have met with an untimely end, nevertheless it is felt that thought on modernizing has been stimulated.

How Remodeling Bureau Operates

Briefly, this is the path that an inquiry takes in passing through the Minneapolis Home Modernizing Bureau. John Doe sees an ad in the newspaper placed there by the Minneapolis bureau, to the effect that free suggestions and estimates on modernizing may be had by getting in touch with the organization. For some time he has wondered how much it would cost to install an extra bath room and lavatory, build in some modern cupboards in the kitchen, put in an oil burner and build new front

The same house after adding in value many times the cost of the remodeling

steps. Reading the ad he learns that he can get all the needed information and a careful estimate from a single source. So he takes action, calling up or coming into the bureau. A general contractor is sent out to look the proposition over and to make suggestions and give an estimate. As plumbing enters into this particular job to an appreciable extent, one of the plumbers belonging to the bureau suggests that he send a man with the contractor. If no bath room had been needed by the prospect, he might have been interested in finding out the cost of a new boiler. One of the plumbing and heating men would have been called. Careful watch is kept of each inquiry from the time it is listed by the Bureau until the work is completed. The prospect may have two or three contractors render estimates on the proposed work if he wishes.

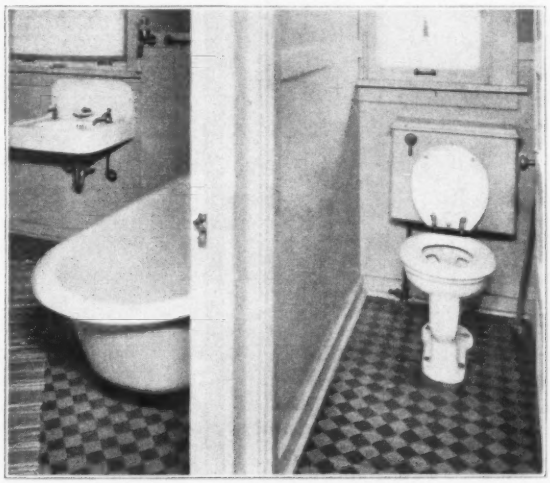
It is interesting to note that the time elapsing between the date of inquiry and the placing of modernizing jobs is three months on an average. This time is average not only for the Minneapolis bureau, but for bureaus all over the United States.

When the Minneapolis bureau was first opened, all the names of the prospects were turned over to contractors who had lists of names of the members of the bureau. These contractors were pledged to buy all materials from members of the bureau. This spring the plan of allocation was changed. Now all prospects are turned over to the material dealer who will furnish the major part of the building material used in the particular job. And he is free to pass it on to his contractor customers. This is true in every case excepting when plumbing and heating are the major part of the modernizing, and then the inquiry is allocated as described above. And we might say that nearly every modernizing job requires some change in addition to plumbing and heating.

Much credit is due the following retail plumbers: Belden-Porter Co., Bjorkman Bros., E. A. Lamb Co., Stiller Co., Hineline Co., Huston Co., L. H. Johnson Co. and the Crane Co. These men, outstanding in their line of work, have given not only financial aid to the Bureau, but also given free all their time, having enabled the Bureau to function in a larger and more efficient way than it could have possibly done without them.

twelve million people living in American cities of 10,000 or more have no bathrooms. More than a million homes within central-station areas are not wired for electricity. Of the 20,000,000 one and two-family houses in the United States, 12,000,000 are said to need modernizing.

"All told, there is potentially $24,000,000,000 worth of modernizing work to be done, and the Home Modernizing Bureau contemplates that two billion, or one-twelfth of the total, will be done during 1930.



How the bathroom looked after being remodeled

National Interest in Remodeling

The attention of thoughtful men of business, interested in any way in the building industry, or in the recovery of last year's business levels, is turned to the matter of remodeling.

It is interesting to note the attitude being taken by building and loan associations in this matter. They are dependent directly upon what is going on in the building field. Here is what one of the publications says concerning remodeling: "More promising than new construction is the modernization program projected by the home modernization bureau. According to a government survey, "There is no reason why building and loan associations should not finance a large part of the total rehabilitation work. Every association has on its books members who are prospects for remodeling jobs. Loans on remodeling jobs are particularly strategic at this time when funds are limited and appraisals for larger loans must be close."

It is evident, therefore, that these groups are being urged to furnish the funds necessary for remodeling. That will make the sale easier for the contractor who is pushing remodeling. All he has to do is talk with his local building and loan association and learn what their attitude is—and he will likely find it favorable to the matter at hand.

With the amount of talk and publicity being given to remodeling, the matter of selling resolves itself into alertness to opportunity, and a knowledge of just how, in any community, such work may be financed. What the Minneapolis bureau has done can be duplicated in every city and town in the country to the advantage of every man in the building industry.

An Unusual Remodeling Sale

Chicago contractor uses shower stall to develop nice volume of sales

THAT the remodeling idea is universal in its application is proved by the experience of Wm. Gawne, Jr., plumbing and heating contractor at 5519 W. Madison street, Chicago, Ill. Mr. Gawne is keenly interested in the sales possibilities of the products of the industry; and his test for every product is its salability. The product displayed in his sales room has no opportunity to grow old in that service.

With the growing popularity of the shower, Mr. Gawne went, characteristically, to the heart of the problem. He realized that there were places where showers were needed, and where the problem of wet floors, and the accompanying possibility of damage to the ceilings below, had to be met. He selected a shower stall and placed it on display. It was sold to a country club, through a member in whose home Mr. Gawne has done work from time to time.

In the course of their dealings, Mr. Gawne called attention to the possible value of such a shower stall in a string of hotels in which his customer is interested. These hotels are not to be thought of as of the de luxe class, by any means, where such refinements as showers might be more or less easily sold. The hotels are located on the fringes of Chicago's business district, the traditional gathering place for the unemployed, by choice and by circumstance. The men who live in them from day to day range from unfortunates, "down on their luck," to the type of men who seem to be able to live, somehow, without working. Not a promising prospect, at first glance.

Taking Advantage of an Opportunity

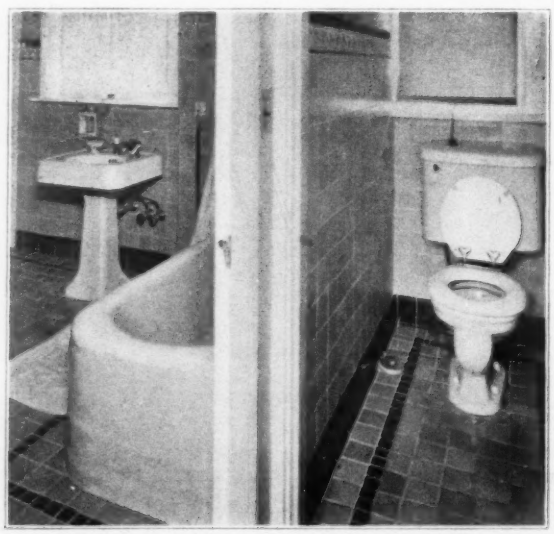
But Mr. Gawne saw just how the shower stall would fill the need. He sketched a layout for his customer and on the basis of his presentation installed six of the shower stalls. After they were in, Mr. Gawne turned on all of the showers and took his customer downstairs. "If any water comes through," he said, "we'll do no more." Naturally, no water came through—and this consideration, when the type of "roomer" served is remembered, was important. Such men would not be too careful of the equipment and, as Mr. Gawne said, short of putting a whole lining of sheet lead under the floor, it would be difficult to avoid some leakage.

Other hotels in the string have been "modernized" in the same way—and the total amount of the work which Mr. Gawne secured from these hotels runs somewhere in the neighborhood of $20,000. Incidentally, unless Mr. Gawne had been alive to the sales opportunity offered by the shower stall he carries, he would never have had a chance at the work. His customer said: "I didn't know you did work downtown." He would not have thought of Mr. Gawne for such work, in spite of the fact that Mr. Gawne serves his home.

It is evident that on this one item of the shower stall alone, Mr. Gawne has been able to secure some profitable remodeling work. In addition to the hotels, there was the country club installation, and the installation of a private shower for the owner of a factory as a convenience.

A number of months ago we carried a story about Mr. Gawne's selling activities in this feature section. At that time we noted the growing volume of remodeling business, and Mr. Gawne was predicting a steady increase with each year, because of his increased selling efforts. Since that time the increase has been just about what he predicted. The credit for this gain must be given to his constant sales activities. On the three days previous to the time when a DOMESTIC ENGINEERING representative talked to Mr. Gawne about the installations in the hotels mentioned, he had, by personal contact, secured six jobs of remodeling, involving two kitchen sinks, a water softener, and some other replacements of plumbing fixtures.

How the bathroom looked after being remodeled



What's Your Prospect Thinking?

The Master Salesman shows how to find out

IN DRAWING to a conclusion of that important factor of "hidden objections," we will analyze the subject for the purpose of finding a basis for the merchant plumber to work from, in order that he may get those objections into the open. If he uncovers those hidden thoughts, he can build his own around them with angles that will break down the resistance and win his customer to his way of thinking.

Some Effective Rules

It is a natural condition that everyone likes to feel that he does his own thinking and generally becomes most obstinate, often to his disadvantage, when he gets the idea that anyone is trying to coerce his trend of thought. Therefore, the first rule to work from is to try to learn something of what is in your customer's mind. Sometimes it is well to start him talking and keep him going for a while, just for the purpose of finding out "how he is thinking:"

The second rule to bear in mind is: If the customer is being approached on the subject of buying something he had not thought of seriously until submitted by the salesman, he cannot be expected to show any real interest, unless reasons for his wanting it are planted in his mind. He must then be given an opportunity to think about it, realize it and visualize it before his growing interest becomes sufficiently active to respond to the advances of the salesman. So, the salesman's approach must have in it a story of conditions which exist and his story must carry on to the point where the buyer agrees that the conditions could be much better.

The third rule is: Don't offer the commodity until rule two has been carried through and then it must come out as a remedy, or as an improvement that will enhance the value of the property; or, a convenience, a labor-saver, that makes life worth living for the housewife. The commodity should not be introduced as merchandise,—something to be sold. It comes into the situation as something necessary to complete that which is lacking; or in an industrial plant, a necessity, a remedy that has become indispensable.

Fourth, when the customer, apparently sold up to the point of closing, unexpectedly turns negative and gives an indefinite refusal to buy, the sale has really just reached a point of actual contact. It is from this point that the salesman gets down to real hard (mental) work. The task of learning the real reason for refusal to buy is not easy. It cannot be forced out of the customer. The salesman must think fast to know what question he can put, or what remark he can make, that will make the customer talk. The whole objective of the salesman must be only to develop an atmosphere of confidence that will make the customer feel he should tell the salesman why he can't buy now. Direct questions should be avoided; to flatly ask, "Why can't you buy now?" will not work as well as, "If you could buy now, it would settle the problem, wouldn't it?" Putting it that way keeps the "remedy" in mind and invites, without asking, a further explanation of "why not now."

Objections Are Important

Fifth, when the real reason for not buying is finally exposed, often it appears to the salesman as inconsequential. Remember, it is not inconsequential to the customer. It is the reason, to him, why he should not buy and with him carries all the importance of a definite decision. The salesman, therefore, should be doubly on guard against how he expresses his reception of the reason. It is better to appear to agree at the moment, by saying something sympathetic, in harmony with the customer's thought, immediately connecting that bit of sympathy with a mild suggestion that there are always ways of eliminating objections. Then it is safe to go on with reasons to offset the other side of the question. This must be done with careful avoidance of any form of argument. Offer your reasons as suggestions that come only from a desire to advance an effective remedy.

Sixth: The question of price is probably most serious with many. It is a natural question for a prospective buyer to ask—"how much"—and equally natural for the salesman to immediately quote a price. If the situation is analyzed as it stands at the time the buyer asks for a price, it is generally discovered that he is interested in the cost before he knows anything about the actual value of the commodity. Price is naturally first in the buyer's mind, but should be last in the mind of the salesman. He makes a serious mistake, therefore, when he quotes his price before establishing a true picture of the value of the product.

If the salesman meets the question squarely by explaining that the price is right, he can usually turn the direct quotation aside for the moment without giving offense. At the same time,

launch into a detailed explanation of how the commodity is built, if a piece of merchandise, or the kind of material that will be used, if a contract for an installation of fixtures; building up a colorful picture of his proposition that brings into line features outstanding against other makes or competition. It is possible to quote a price, after building up a receptive attitude in the customer, by pointing to the special features of the product to be sold.

Dealing with the "Shopper"

Where it is anticipated, or subsequently develops, that price is a dominating factor, as with a "shopper" for instance, a definite or final figure should be withheld as long as possible. With a shopper it is better to say, "Oh, about so much; I'd rather wait until you get further along, and I'll give you the best price I can." Any price named too soon will not be accepted by the "shopper," but merely used by him to find out, through competition, what lowest price can be obtained. Quality, workmanship, intrinsic value of any sort, will not have any influencing effect on the "shopper" until he is ready to close. So with the shopper or price hunter, the objective there is to hold off any definite figure and exact a promise not to close until another conference can be held and then final figures will be submitted. At that time and not before will the value of comparison have weight with the customer.

These six rules will be found safe factors in formulating any plan of selling.

It may be some small operator, a master plumber, will read this who has the same idea a certain manufacturer expressed of himself to the master salesman. He said: "One trouble is we can't compete with the big manufacturers. We're small and our line is not extensive; our customers know that."

No doubt his customers do think he is small. He thinks so, why shouldn't his customers. Yet the master salesman happened to know that in the manufacture of his products this small manufacturer had developed a process in finishing that the greatest and biggest of his competitors did not have. He is greater than they in the accomplishment of better finished products. The small fellow always has a good argument for his line against big competition. He works on less production and can attain better quality in production because it is possible to give more competent supervision to manufacturing small quantity than volume production. And it is so with the small master plumber.

The master plumber who tries to compete with the big contractor on big contract work makes a mistake. If he confines himself to the class of work he has specialized in and knows all its angles he can outpoint the big operator every time with the argument of closer personal supervision and more economical methods learned by specialized study. The master plumber who thinks he is only a little fellow should change his opinion of himself. In his way he's as big as the big one. There's an old saying which we can adapt to the present case: "As small as I am and as big as you are, I'm as big as you are as small as I am." In their respective classes each has his creative and productive value.

Against "Big" Competition

The same thing applies in merchandising electrified household equipment. Public service, electric and gas companies can offer service; but in the final analysis, what can they offer other than that of the individual merchant plumber? It is merely an unnecessary awe of the big corporation that whispers in the ear of the small operator, that the big company is too big to compete with. Yet any merchant plumber can have the "service" support of any manufacturer of products that require service.

When a sales contact has reached that point of refusal and the salesman goes away, later someone else makes the sale or gets the contract; not infrequently that sale or contract was lost because the salesman quit just before his opportunity to win out developed. Someone else happens in at the psychological moment and without apparent effort gets the order. The first salesman did all the missionary work, built up an interest in the product or job, gets a "Won't buy now," walks out and the other fellow walks in. He doesn't have to say much or do much; the customer has already been sold on the idea. Salesman number two just walks into the order. He gets the hidden reason, explains it away, and wins on the hard work of number one salesman.

"Hidden reasons" is merely a term, a phrase used to convey the negative attitude of a customer. It can develop at any time, anywhere, and out of any part of a sales conference. It can develop in the very approach of the merchant plumber or salesman. He says or does something that creates a resistance in the customer. No use to go any further until the reason for that attitude is discovered and explained away. He may get started right enough, but, unexplainedly, the customer seems to cool off, freeze up, as it were. No use trying to work up a sale with that customer until it is discovered what froze his interest. "Hidden reasons" is a term that will fit the answer to every lost sale. There is always a reason for everything and action of human origin. When an order is lost there is a reason for it.

Get at the Reason

Diametrically opposite, there is always a reason why a customer buys. But how many stop to figure out that problem? They got the order or contract, so why worry about the reason for getting it. Yet if we knew more of the reasons why we get orders or contracts we would know better how to find the reasons why we don't get them. That is why we say "hidden reasons" is the keynote to every sale, won or lost. Giving an equal amount of time to analyzing the reasons for successful sales is mental training against the time when the unknown opposition arises and finds us thinking far enough ahead of the customer to shape the conversation to where we uncover what we need to know.

In the present day, competition has reversed the mode of acquiring business. Formerly, with established houses, much of it came unsolicited. With more houses, equally well established, there is no longer a surplus of business seeking the merchant and plumber, but more of the latter seeking that business. In former days, the "hidden reason" was present, but less frequently, because the buyer more often was seeking the seller. Today the buyer knows the seller is seeking him; hidden reasons thrive under those conditions, and we must know how to uncover them.

These interesting and intensely practical trouble experiences were related by W. A. Webster before the seventh annual convention of the American Oil Burner Association recently held in Chicago.

Trouble Jobs *in* Installing *and* Servicing Oil Burners

THERE has been in the past a number of papers read on the subject of installation and maintenance of oil burners. The substance of those papers has been directed chiefly to the mechanics of the installation work, such as following the Underwriters' codes, fitting up pipes, placement of tanks, setting the burner in relation to the boiler, and so forth. I am not going into that detail. I am going to tell you of some of the experiences I have had with dealers and with their installation and maintenance problems—and from each of the experiences that I will relate a moral may be derived. This, I feel, will treat the subject more in a general than a specific way and enable us to formulate general rules which will eliminate many of the specific troubles.

There are a great number of interesting articles published by the advertising departments of the many oil burner manufacturers. One type of article is written and published for the purpose of getting the story of oil burning over to the prospective purchasers and helping to create in them the desire to buy.

There are other types of articles that are not directed to the buying public. They are aimed and fired directly at the individual who sells the burner to his prospect and then has to keep that burner sold. The article along this line that appealed to me the most had the following title: *"No Oil Burner Is Any Better, Nor Can It Operate Any Better, Than the Manner in Which It Is Installed."* This title alone brought to my memory some of the things that have happened in the past years and some of those very things are happening every day—even today.

Let me tell you about a few oil burner installations that I have seen that would never have operated properly under original installation conditions—they didn't have a chance.

Lack of Knowledge

Some time ago I was making a trip through a territory for the purpose of assisting a few dealers with their installation problems. One evening when returning to my hotel I received a wire from our factory informing me to proceed to the next city immediately, or phone the dealer when I would arrive. The phone conversation was somewhat of the following after the connection had been made:

A sufficiently high temperature to complete combustion is necessary to prevent smoking. In one trouble job the writer experienced, with two identical boilers and burners, every two weeks the boilers took turns in smoking

"Hello, Mr. Man?"

"Yes—"

"This is Webster speaking. I have just received a wire advising me to communicate with you immediately. What is your trouble?"

"Well, I finished the installation of a burner this afternoon and the burner just won't go. It started, but just for a moment. I can't get it to start again and, all in all, I'm in a terrible fix."

To hasten the story, I proceeded to the job as quickly as possible—in fact, I arrived about 1 a. m. A survey was made, and naturally the first thing checked was the wiring. After having been told that the burner started and would not continue to run, I was led to believe that there must be a short circuit or a loose connection in the wiring. As the survey continued, it disclosed the fact that the combustion control had been omitted—at least I could not locate it. Later, I found the combustion control had been installed—and properly wired—but where do you suppose it was located? A hole had been bored through the side of the coal bin and the combustion control carefully installed there, although properly wired up to the burner. Well, that was a case of not knowing what to do and, furthermore, not being interested enough to find out. Had reference been made to the instruction manual, it at least would have shown the approximate location of the combustion control.

DON'T start a job unless you first know what it is all about.

DON'T fail to conduct a thorough survey before making an installation.

DON'T fail to make haste slowly. Make sure everything is correct before turning the job over.

DON'T be too eager to remove a competitive burner. Find out why the burner has failed to operate before it is removed. Don't repeat your competitor's mistakes.

DON'T jump at conclusions. Understand the thing you wish to accomplish, and gather all of the facts before an attempt is made to render a decision.

Poor Investigation

Another grave situation and hurry-up call for assistance occurred one evening during the early Fall when my telephone rang and I was summoned to a nearby city. Upon my arrival I was informed that a burner installation had been completed that afternoon, and while trying it out it had puffed, just making a mess of everything. I always believe that a condition of this kind can be traced to some definite cause and, of course, I started to make an investigation. There was no indication of anything being in error about the installation itself. The burner had been properly set, combustion chamber nicely constructed and electrical work completed according to code. I asked the occupants of the home if I might go through the house. The request being granted, I started to follow the chimney breast and on the second floor found an open fireplace which connected into the chimney leading from the basement. A further investigation disclosed the fact that a slab had worked loose from the masonry and had fallen across the chimney, completely blocking off the flue passages. The accumulation of gases caused the puff. This points out a case of sheer neglect in conducting a proper survey before an installation of an oil burner is made.

Poor Installation

About two years ago I happened to be traveling through the South, and in making a call on one of our dealers he greeted me with open arms. He slapped me on the back and said, "Boy, you're just in time! We have to make good on a burner that we installed last week or the burner comes out—and our time is up tonight." My first question was, "What seems to be the difficulty with the burner?" "Just can't get it to operate right, and the owner's pretty sore now. He wants to make a change," was the reply.

Just at that time the owner stopped into the dealer's place of business to inform him that his time expired at 6 p. m., and if things were not O. K. by that time to remove the burner and make way for the other fellow who would be on the job the following morning. I was introduced to the gentleman and I questioned him as to the manner in which the burner had been operating and the difficulty he had observed from the time of its installation. The information which I gathered from him led me to believe that the situation was not so serious as it seemed to him. We then proceeded to the owner's home. After looking things over very carefully, we put the burner into operation, and it had not been running more than five minutes before I remarked: "The trouble here is in the suction line." We proceeded to test the suction line and located five leaks in the pipe between the burner and the tank. These leaks were made tight and the burner again put into operation. The burner then operated without its previous trouble. It did not lose its home and is still operating as nicely today as it did after the corrections had been made in the leaking suction line. This discloses slip-shod installation methods which cause dissatisfied owners.

Removal of Competitive Equipment

The owner of a group of buildings wanted to have a central heating plant installed in one of his buildings which would be large enough to take care of the load demand of the entire group. The boilers were to be equipped with oil burners. This was a conversion job, due to the fact that all of the buildings had heating plants installed at the time of their construction. The building which was most adequate for this pupose was, of course, the one selected in which to install the central heating plant. It was decided that three boilers would be required to meet the load demand. The heating plant was completed. The oil burners were installed. Everything went along fine until a test was conducted.

It had been figured out that oil must be burned at the

rate of 6.5 gallons per hour in each boiler in order to carry the load, and the oil to be burned free of soot and smoke. When the test was conducted it was impossible to burn enough oil to meet the load demand and any amount of oil above four gallons per hour burned would produce smoke—and lots of it. The burners that were installed were condemned and bids for other makes of burners requested.

The engineer who was to install this second battery of burners felt that something must be at fault beside the burners and if he were not careful he would be in the same position with his burners as the previous fellow was, so he made a very thorough investigation. He found that the center wall of two chimneys had been removed for a distance of ten to fifteen feet and the flues from the three boilers were connected with it, with the expectation that it would carry off the products of combustion satisfactorily. The engineer who was to install the second battery of burners recommended a separate chimney for each boiler to be built of ample size and extend ten feet higher than the original one. His recommendations were carried out. The burners were installed and everything turned out satisfactorily.

Insufficient Knowledge of Operating Conditions

A short while ago there were two boilers installed in an apartment house. They were being fired with soft coal and the smoke became such a nuisance that oil burners were suggested and tried out in one of the boilers. After the installation of the burner there was such a marked decrease in the smoke condition that it was decided to equip the second boiler with an oil burner. The two boilers were as near alike in all particulars as it was possible for two boilers to be. When the second boiler was equipped with an oil burner and fired no effect whatever was noticed upon the smoke. Position of bridge walls and arches were changed. Other things were done. The second boiler continued to smoke, while the first performed satisfactorily. This continued for two weeks, when the second boiler suddenly stopped smoking and the first one commenced. Regularly thereafter at intervals of two weeks these two boilers would exchange the responsibility of producing smoke. One would behave while the other was smoking. The contractor who had installed the burners was unable to make collection for either one of them and finally in despair removed them both.

The solution of this problem was that the load was too heavy for one boiler and too light for both when operating at capacity. The fireman had one boiler working up to rating and the other working just hard enough to take up the slack, as he expressed it. The apartment house owner did not want him to operate one boiler up to rating all of the time, so he shifted the load every two weeks. Temperature is necessary to complete combustion, as everyone knows. The temperature in the one furnace—the one that was doing the work—was high enough to complete combustion; and in the other furnace it was too low. To have temperature in a furnace we must burn enough fuel to produce and maintain it. There was too much combustion space for the amount of oil burned when the boiler was being worked to take care of the slack and the combustion space was about right when the boilers worked up to capacity. This problem could easily have been solved by dividing the load equally between the two boilers and constructing the combustion chamber in each boiler accordingly. Failure of the contractor's solving this problem can be traced to an insufficient knowledge of the principles of combustion. He placed himself in a very embarrassing position when he was unable to solve the problem.

Reference again can be made to the title "No Oil Burner Is Any Better, Nor Can It Operate Any Better, Than the Manner in Which It Is Installed." This was purely and simply an operating problem, or perhaps the adaptability of the burner to an operating condition.

Job *and* Shop Practice

V—Welding in a Plumbing and Heating Shop

As Used by Our Readers

The welding department of a large plumbing and heating shop

MANY modern plumbing and heating shops have come to depend upon welding in a measure undreamed of a few years ago. Welding is used to a great extent in the fabrication of plumbing and heating materials and it is natural that the plumbing and heating man should adapt this process to his uses. The use of welding in the shop, of course, takes the form of maintenance and repairs in the great majority of instances, although in isolated cases such as the making of a special kind of tank, the welding outfit is often used. Standard tanks, however, can be procured from the manufacturer much more cheaply than they can be made in the ordinary plumbing and heating shop.

Unlooked for jobs naturally gravitate to the welding and cutting shop. In wrecking old buildings, the cutting torch frequently comes into use in taking out plumbing and heating equipment. Also worthless junk can readily be cut up and reduced to sizes for handling when an accumulation of junk is to be sold.

View of Inland Heating Co.'s Showroom

Plumbing and Heating Contractors See Sales Possibilities in

Mechanical Refrigeration

IN AN effort to learn what various contractors are doing in the way of merchandising refrigeration systems, DOMESTIC ENGINEERING has interviewed a number of operators who have taken up this product with an eye to creating new sales. An account of their methods, then, should be of value to other plumbing and heating contractors who have considered adding refrigeration to their business program, or to those who have already taken it up but who have made little effort so far to promote its sale.

Although the Imperial Heating Company of Chicago has handled mechanical refrigeration for only the last eight or nine months, it has found the commodity becoming a more and more lucrative part of its business every month.

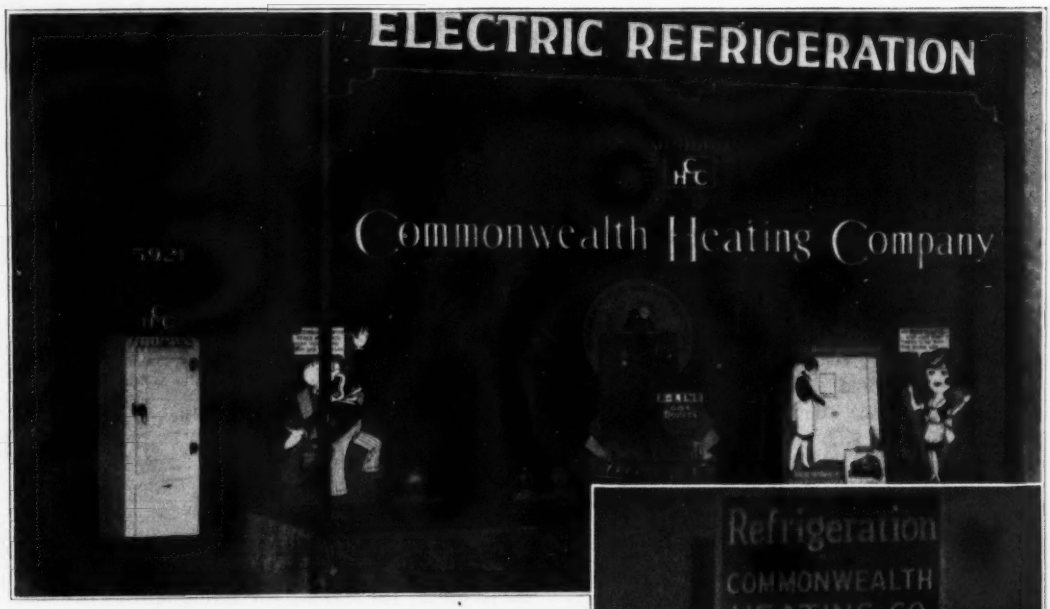
H. R. Conrad, vice president of the company, says that, while no effort is made to sell a refrigeration unit except where a heating installation has been or is being sold, the volume of business derived from this source has been highly satisfactory. His concern employs four salesmen whose contacts, mainly, are made with the end in view of selling heating equipment, but who naturally do not overlook refrigeration prospects.

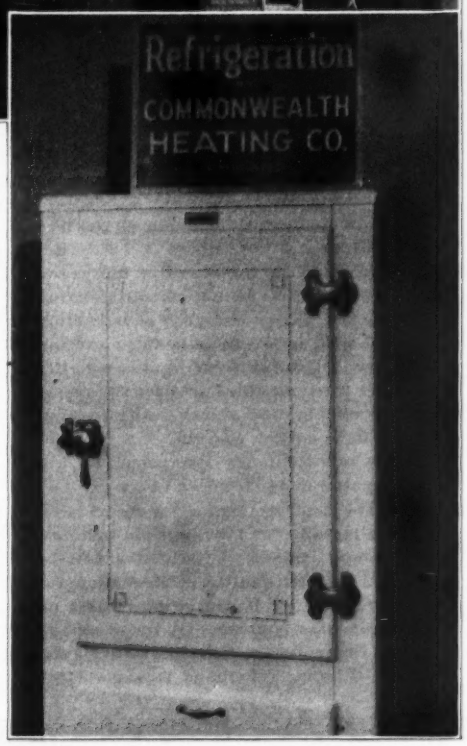
This company has found that the concern which secures the heating contract almost invariably gets the refrigeration contract, if a sale on the latter item can be made at all, and it is for this reason that the Imperial company devotes its first effort to interesting the heating prospect.

"Marketing mechanical refrigeration," says Mr. Conrad, "according to our experience, has resolved itself into a problem of getting the prospect to realize that our line measures up to the quality of other refrigeration systems with which he may be more familiar. It seems that nearly every prospect is sold on the idea of some sort of mechanical cooling system, and would like to own one, but, in most cases, he has heard of only one or two makes. After that, of course, it is our job to break down the customer's resistance and show him that our system is a real buy."

To the people on his prospect list, Mr. Conrad sends out a double postal card, stamped and bearing the company's address. One section of the card has spaces for the prospective customer's name, address and telephone number, with blanks to be filled in, opposite the type of work he is interested in having estimated. With every heating bid submitted, and in various other customer-addressed mail, an envelope stuffer is enclosed. This envelope stuffer contains several illustrations of cabinet models and cooling systems handled by the company. A circular letter suggesting mechanical refrigeration, which was used by the Imperial company during the Christmas season, is reproduced below. This sets forth certain pertinent facts about refrigeration in a simple, direct way, without sensational claims and high-flown praises.

The territory covered by this firm is an extensive one and rich in sales possibilities. The company does not limit itself to a neighborhood or a district but, instead,





Show window and inside view of the Commonwealth Heating Co. of Chicago

goes pretty much afield, carrying its activities into the west, northwest and north sections of Chicago. Included in this territory are a vast number of single family homes, but an even greater number of apartment buildings, ranging from two-flats to many of skyscraper proportions. The salesmen are not given regular territories, but work their individual prospects wherever they get a lead.

The Chatham Heating Co., 353 West 79th street, Chicago, has used the radio to some extent in promoting the sale of mechanical refrigeration, though the exact measure of effect gained through this medium, according to J. F. Grigoleit, an executive of the company, has been hard to calculate. At least, it served as an announcement and provided an opening wedge with many prospective buyers. The substance of this broadcast, which was given on alternate nights of the week, is reprinted in these pages.

Mr. Grigoleit says he feels that the possibilities for the heating contractor in handling mechanical refrigeration are unique in that it furnishes him with a powerful weapon against slack business conditions during the warm season of the year. "Our firm," he says, "decided sometime ago to take up refrigeration as an important part of its business and not just as a side line. We have already worked the field long enough to find out that there is a very profitable market waiting; we have tested it, so we are not going in to the thing blindly. From the number of installations we have made up to this

TELEPHONE KEYSTONE 6280

L. F. CONRAD, PRES. G. A. CONRAD, SEC'Y
H. R. CONRAD, VICE-PRES. A. J. CONRAD, SALES MGR.

ESTABLISHED 1906

IMPERIAL HEATING CO., INC.

STEAM, HOT WATER AND VAPOR HEATING PLANTS INSTALLED

4025-7 ELSTON AVENUE, CHICAGO

After having surveyed the mechanical refrigeration field for quite some time, we have finally decided to handle the.... machine.

This refrigeration compares with the best on the market, besides running very quietly and being conservative in the use of electricity.

We do the installing and servicing of it, and if you are familiar with our heating installations, you can rest assured that you will be, as we term it, just another "satisfied customer" in refrigeration, too.

Our latest addition to the .... line is a 4½ Cu. Ft. self-contained cabinet which sells for:

Lacquer Enamel ------- $160.00
Lacquer Porcelain ---- $175.00
All Porcelain -------- $195.00

all set up in your apartment ready to plug in. (Electrical connections by others.)

These prices are within reach of most everybody's purse, we feel, and as a matter of suggestion - how about getting the wife one for a Christmas present?

If interested, kindly get in touch with the writer for further details.

Respectfully yours,
IMPERIAL HEATING COMPANY

time, we have been enabled to judge what margin of profit we can safely rely upon, as well as the amount of servicing that will be necessary to the satisfactory maintenance of units after they are installed. In other words, we have surveyed the field open to us for development and know where we stand.

"Personal contact," Mr. Grigoleit declared, "has been chiefly responsible in securing the major part of our business, and also in keeping customers satisfied. It has meant a lot of time in the field and no loafing around the office, but we have found that it pays. The more time we spend outside, the more contacts we are able to make."

New and greater opportunities for remodeling work as well as new avenues for merchandising have been opened to the Inland Heating Co., 1120 North Cicero avenue, Chicago, through the addition of mechanical refrigeration to its selling plan.

$5.00 **$5.00**

INLAND HEATING COMPANY

Gentlemen:

Our friends-Name .....

Address..... Phone.....

Might be interested in the installation of a guaranteed .... heating plant. If you secure an order from them, I understand that you will pay me the sum of $5.00.

Signed.....

Address .....

.....

$5.00 **$5.00**

Copy of Radio Broadcast Made by Chatham Heating Co.

Chatham Heating Co. announces the new * * * * 1930 * * * * Model * * * * Refrigerator, which is the result of ten years' experience in this field. Its outstanding features are heavy rugged construction combined with aristocratic beauty; exceedingly low operating cost and long life because it runs one-third as often; is noiseless, dependable, and comes ready to plug into the light socket. See the * * * * and learn its extraordinary low price, its unequaled value is apparent at once.

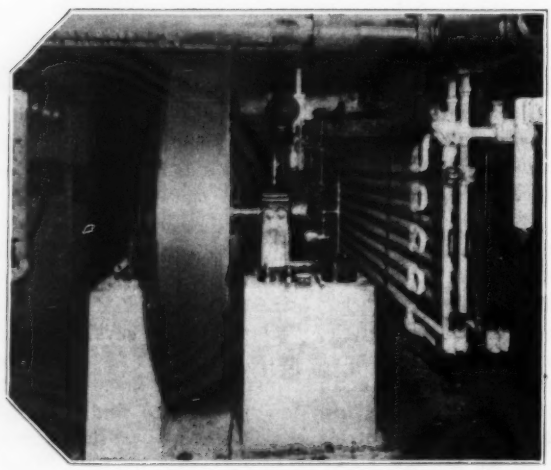
Chatham Heating Company's experienced men also install * * * * multiple systems. Without any obligation, estimates will be furnished on this quality refrigeration for any requirements. It can be purchased on convenient time payments at the Chatham Heating Company, at 353 W. 79th Street, Chicago, Illinois. Telephone Triangle 3450.

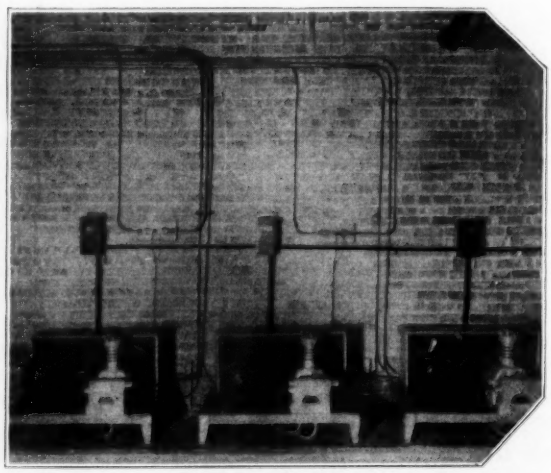
In giving his reasons for taking up this new line, William J. Masoner, president of the firm, said: "In view of the inactive condition prevailing in the building field, we felt it necessary to branch out and attempt in some way to create a new field for ourselves. With mechanical refrigeration becoming so popular an item in the home, we have found it possible to develop our modernizing business on a continually enlarging scale, for there are still thousands and thousands of homes and apartment buildings in our city alone without modern cooling systems. Practically all of these homes and apartment buildings will eventually install some sort of mechanical systems, and we are out to get our part of such work. We find this a far more paying procedure than waiting for new buildings to be started."

Mr. Masoner says the majority of his company's refrigeration sales have been in the multiple unit system rather than the single units.

In the first place, Mr. Masoner has secured from an agency that specializes in such things, a list of names for his prospect files, classified as to home owners, apart-

(Continued on Page 164)





Installations for multiple unit refrigeration systems made by Chicago contractor

Modern Drainage *and* Vent Fittings

By R. M. STARBUCK, JR.

ARTICLE V

AT THE outset of our final article of this series, which will be devoted chiefly to the consideration of vent fittings, we want to direct your attention to a phase of the subject that we have not thus far stressed to any great extent.

Those who have kept pace with the advancement of the science of plumbing in recent years are well aware of the fact that one of the most significant changes is in the greatly increased use of the 3-inch soil stack for residences and other dwellings.

For years a comparatively small number of cities has

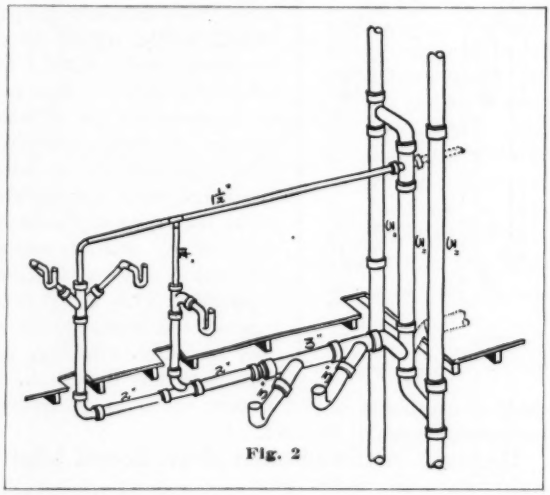


Fig. 2

been using the smaller size stack, but the practice has been very limited, 4-inch being mostly used.

Most of the members of the plumbing trade have been under the strong impression that nothing smaller than 4-inch pipe could possibly be used for a water closet.

The chief circumstance that helped to prove this opinion erroneous was the publishing of the Hoover report in 1924. This report strongly commended the use of the 3-inch stack in dwellings, and showed that scientific experiments undertaken and carried out at the Bureau of Standards in Washington had demonstrated beyond question that for residence and dwelling house work the 3-inch soil stack was even superior to the 4-inch stack, and as we shall later see, its capacity to serve plumbing fixtures is far beyond anyone's earlier realization.

Since 1924 the Hoover recommendations have been adopted by many states, cities and towns in all parts of the country. It is not at all strange then that such a change should have created a great change in the design and use of drainage and vent fittings.

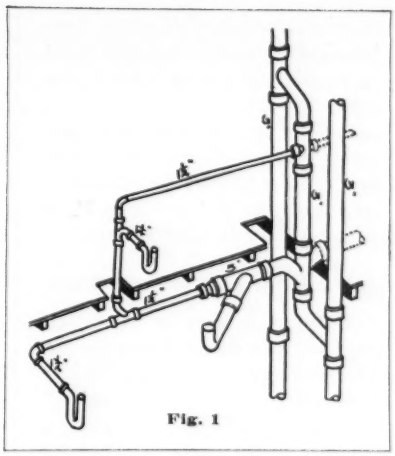


Fig. 1

Hoover Report Reference to 3-Inch Soil Stacks

Since adoption of the 3-inch soil stack has assumed such importance in the plumbing field, and has had such direct bearing on our present subject of drainage and vent fittings, we think it will be well worth while to present in connection with this article quite a bit of matter contained in the Hoover report, which bears on the subject of the 3-inch soil stack.

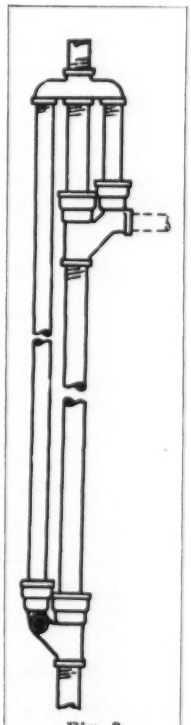


Fig. 3

First mention of the subject appears on page 50, and is as follows:

"There has been a tendency to use soil stacks and waste stacks which are too large. Starting with the assumption that no static head should be developed in the stack, and considering that the place where the stack would be first likely to run full would be immediately below the fitting through which the water entered, it was reasoned that the capacity of the stack should be determined by the capacity of the inlet fitting. Experiments were therefore made, to determine the capacity of inlet fittings, and with these as a basis, the capacities of stacks of different sizes were found by experiments and computations. Doctor Hunter deduced a mathematical formula for stack capacities. The following figures will show the capacities of certain commonly used stacks and inlet fittings:

Diameter of stack in inches	Capacity of stack in fixture units	
	Single or double sanitary T fittings	Single or double Y, combination Y, and one-eighth bend fittings
2	6	12
3	13.5	27
4	24	48

"It will be observed that the sanitary T is much less

satisfactory than a Y or a combination Y and one-eighth bend as an inlet fitting, as it limits the stack capacity.

Or, to put the matter in another way, a 3-inch stack with proper inlet fittings has almost as large a capacity as a 4-inch stack with sanitary T inlet fittings."

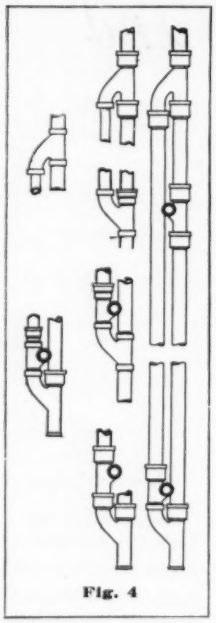


Fig. 4

Advantages of a 3-Inch Stack

Further mention of the 3-inch stack is also to be found in the Hoover report, on page 58, as follows:

"An important conclusion reached by the committee after a thorough discussion of the experimental data, was that a 3-inch soil stack has a greater capacity than has often been thought, provided that the house drain is of adequate size, that the points of inlet are well chosen, and the inlet fittings of proper type. While admitting that a larger size has a greater capacity, and may under some conditions be desirable, a 3-inch soil stack is deemed sufficient for any ordinary dwelling. The economies resulting from using a 3-inch instead of a 4-inch size are material. Less metal is required, transportation and construction costs are less. The 3-inch pipe can be placed in an ordinary wall without furring, thus saving cost and room space. A 3-inch soil pipe can

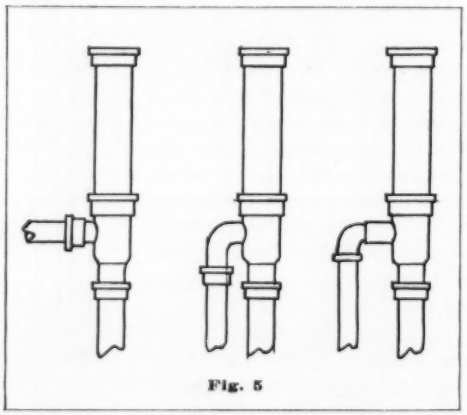


Fig. 5

be placed in a partition having 4-inch studding, and a 3-inch bend can be housed in the flooring better than a 4-inch bend. A 3-inch soil stack may be satisfactorily used for a high building, if the necessary conditions are complied with."

In both these references to the 3-inch stack it will be noted that satisfactory use of the 3-inch soil stack is found to be dependent on the use of inlet fittings of correct design. As we have pointed out in a previous article, investigation showed that in using the 3-inch stack there was a strong aspirating effect produced when fixture wastes entered the stack below the entrance of a water closet. This led to experimentation with fittings having side inlets for bath or lavatory at the same level on the fitting as the water closet entrance comes. It was found that when such fittings are used, the difficulty is completely solved.

Obviously this determination on the part of the Hoover investigation was bound to produce a great demand for fittings of this type, and especially for the 3-inch size. As we have already seen, and shall still further see, this demand has been abundantly supplied.

Capacity of 3-Inch Stack

A most surprising thing, however, is the amount of work that it is found a 3-inch stack can perform. In this connection we quote from page 148, as follows:

"The rated 'practical capacity' of the 3-inch stack for the type of construction in which a part, at least, of the waste pipes from the small fixtures connect directly into the stack, falls between the combined discharge of 4 water closets and that of 5 water closets. It is therefore concluded that a 3-inch soil stack with properly proportioned house drain, lateral branches and vents, will efficiently serve in this type of construction for 12 water closets or their equivalent. The requirements in house drain and vents may be taken from the tables or charts for this or any smaller number of water closets or their equivalent. This is far in excess of the requirements for any separate dwelling, and would permit its use to include a maximum of 72 fixture units, or 8 complete bathroom groups of fixtures."

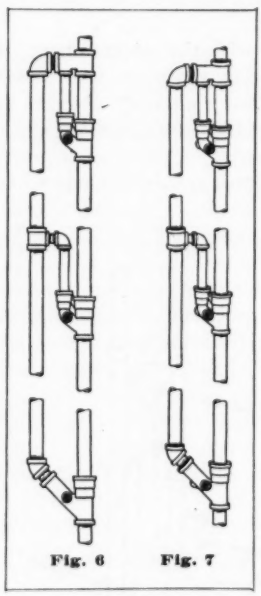


Fig. 6 Fig. 7

The result mentioned seems almost beyond belief to many, for they have been trained to believe something vastly different.

Further on however, the report goes even further than this, as seen by the following:

"We have previously mentioned the possibility of extension of the limits of service of the 3-inch or other stacks, by a slight change in methods of construction. No doubt the limits could be extended without change in methods of construction, by increasing the size and number of vents.

"It will be remembered that the 'practical capacity' of the 3-inch stack was rated on the assumption that the stack may not flow full at any

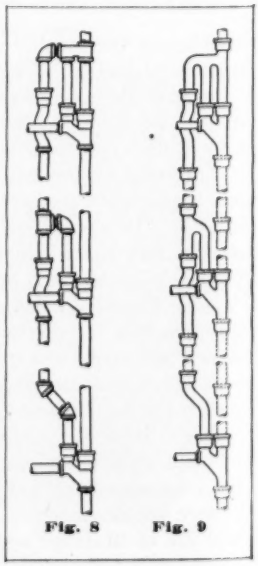


Fig. 8 Fig. 9

point. If the construction is made such that no fixture is connected directly onto the stack, then there is no reason why the stack may not be permitted to flow full and even under a slight head.

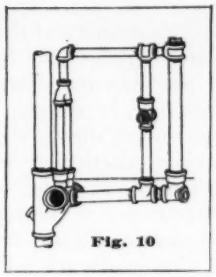


Fig. 10

"Experiments have shown that a velocity of 30 ft. per second in a 3-inch stack is attained in a fall of between 25 and 30 ft. with a possible maximum velocity of about 35 ft. per second. A 3-inch stack flowing full with a velocity of 30 ft. per second will carry water at the rate of 660 gallons per minute, approximately equivalent to the combined discharge of 15 water closets. Reference to Table 2 shows that a carrying capacity of this amount would allow 100 water closets with an ample margin of protection against flooding or overflowing. It would seem, then, that the service to which the 3-inch stack may be adapted for certain types of buildings is practically unlimited."

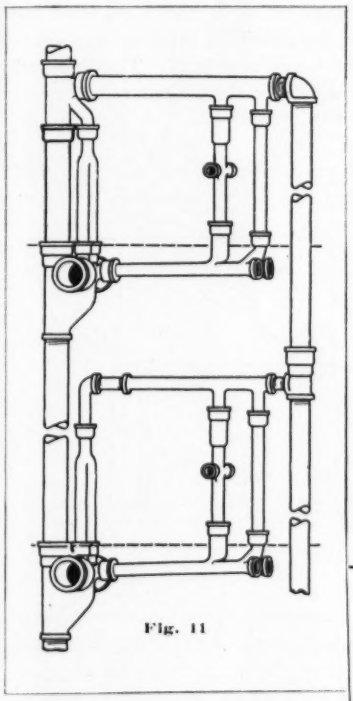


Fig. 11

There is small cause for wonder then, in view of all this remarkable testimony, that the 3-inch drainage fitting with side inlets has come to be so much used in plumbing installations. It is bound to grow constantly in favor.

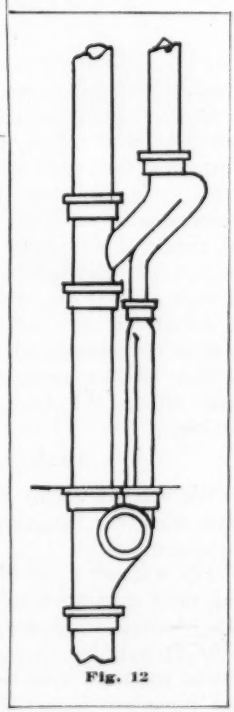


Fig. 12

Referring to the last statement in the last paragraph quoted, the Hoover report continues:

"Figs. 67 and 68 (our Figs. 1 and 2) illustrate a step in this direction, representing single floors for two types of buildings which may be duplicated on any number of floors, up to the limit of service of the 3-inch stack. With such an arrangement, the soil stack will serve only as a carrier during heavy discharges, each floor approximating the effects in a separate small system. No specific tests have been made with such construction, but the data at hand enable us to approximate the limits to which the 3-inch vent may be employed by extension of the curves in Fig. 50. With bathroom units in corresponding positions on successive floors in apartment houses or hotels, the type of construction represented in Fig. 67 (our Fig. 1) might be carried to any height with a 3-inch soil stack, the only precaution necessary being that of insuring sufficient capacity in the house drain and base of stack connection to the drain, one that is necessary regardless of the size of stack employed. There are limits to the height to which a 3-inch vent stack might be employed. Estimates made on the basis of Table 2 for probable coincident discharge, and an extension of the 3-inch vent curve in Fig. 50 to include higher rates of discharge, give an approximate maximum length of 3-inch vent stack of 150 feet. Allowing for elbow or other reductions, and for length of vent above level of fixtures, indicates a limitation of height for a 3-inch vent to about 12 stories. Up to this height the construction might be a 3-inch soil stack, a 3-inch vent stack, and 3-inch main vent connection on each floor. Above that height an increase in size of vent stack only would be required. With lower structures on the same plan, both the vent stack and main vent connection might be reduced below 3 inches. The construction would serve equally well in duplex, as indicated by dotted branch of double Y, and branch vent connection, with only a small reduction in limited heights. Fig. 68 (our Fig. 2) represents the same method applied to office building toilet-room construction.

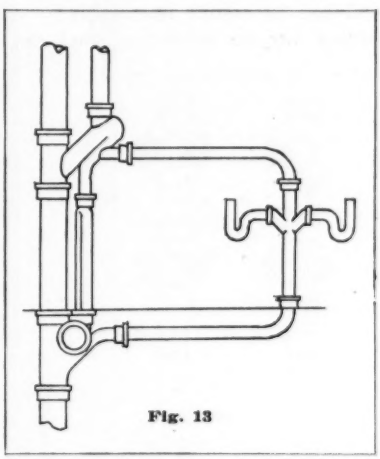


Fig. 13

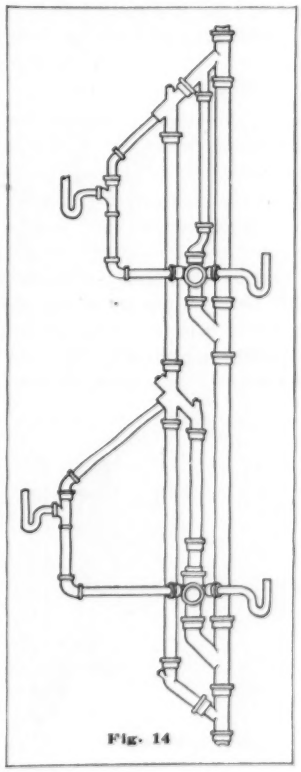


Fig. 14

"As indicated these are very rough estimates, based as they are on the

extension of data obtained for vent requirements with smaller 'peak loads' than would be encountered in these larger systems. However, we have elaborated to a considerable extent merely to emphasize the possibilities of service of the 3-inch stack. Before any definite recommendation can be made it will be necessary to make further determinations and test the results thoroughly."

The Hoover report goes into the subject of stack capacity even further than the consideration of the 3-inch soil stack. On page 151 it takes up the subject of the 4-inch soil stack, and its findings are equally as remarkable as in the case of the 3-inch stack. What it says is as follows:

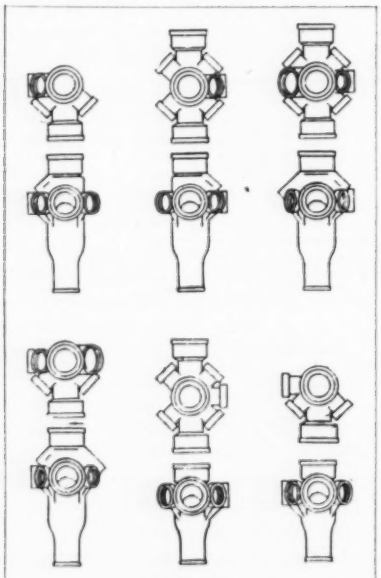


Fig. 15

"It should be observed that there are limitations for the employment of 3-inch stacks, imposed by 3-inch lateral branches leading to the stack, for types of construction in which the number of fixtures emptying into the stack on the same floor exceeds approximately six water-closets, or their equivalent in fixture units, because of the liability to local flooding. No such restriction need be placed on the employment of 4-inch stacks and 4-inch lateral branches to the stack, in the same plan of construction, Fig. 68 (our Fig. 2). With a 4-inch horizontal, and water-closets set 30 inches apart, the holding capacity of the pipe and closet bends is approximately equal to the total discharge from all the water-closets thus placed on any 4-inch horizontal. There is, therefore, no danger of flooding from local causes, and the run-off during the discharge will practically insure proper functioning with any possible combination of discharges of water closets on such a line, always assuming that it is properly vented to protect it against pneumatic effects. It would seem, therefore, that there is no necessity for using a soil stack larger than 4 inches in diameter for any building, provided the construction is such as to protect the fixture traps from the pneumatic effects produced in the stack itself. Here, again, definite recommendations are dependent on further experiments and a complete testing of the plan.

"The size of main vents or vent stacks required by the proposed plan would be about the same as now commonly employed with the 4-inch soil stack. The required size of the house drain would be dependent on the total number of fixtures on the system and the kind of use for which it is intended."

The foregoing quotations from the Hoover report will show more clearly than any other testimony that we can bring to bear upon the subject, how much greater capacity the 3-inch stack and the 4-inch stack are capable of demonstrating than had ever been thought possible. And of course if it has been scientifically proved that these two sizes of soil and waste stacks have such remarkable capacities, the future tendency of plumbing practice is bound to be toward the greatly increased use of them. This means that the use of 3-inch drainage fittings is bound to increase, and likewise, 4-inch fittings, though perhaps not to so great an extent.

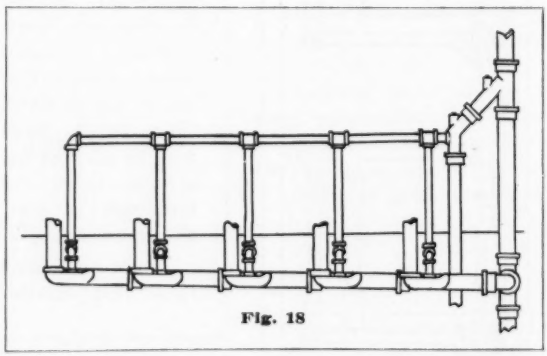


Fig. 18

All of this may not take place overnight, but we expect to see a steady advance in this direction.

Now let us consider some of the drainage fittings and vent fittings that have not been taken up in previous articles.

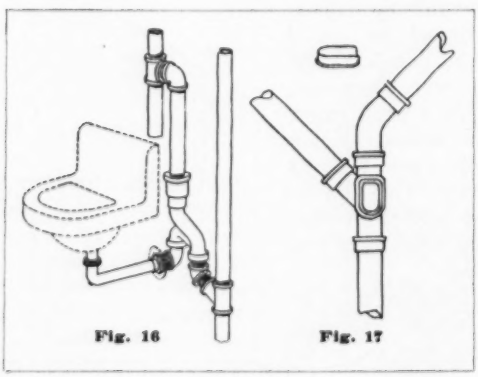
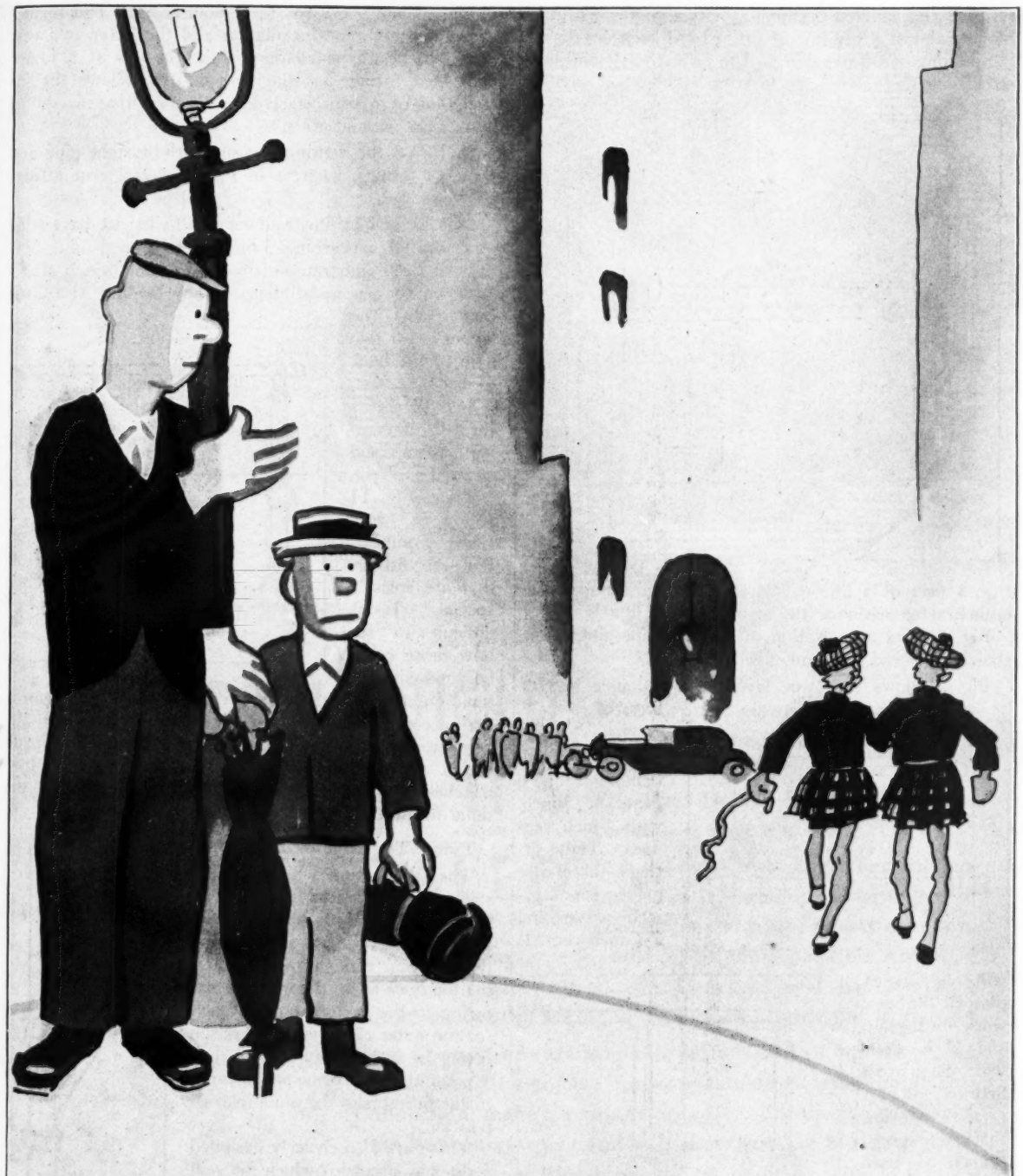


Fig. 16 Fig. 17

Stack for Bungalow Use

We will start with Fig. 3. This shows a screw pipe sink stack for bungalow use, with laundry tubs in the basement.

Fig. 4 shows a line of fittings, with an elevation showing their application to a two-floor system of plumbing. The illustration shows not only combination waste and vent fittings, but fittings which tie the waste and vent stacks together at top and bottom. It will be noted that for these two fittings, Fig. 4 shows all combinations of



"HOOT MON, WILLIE! *Look at that couple of close relations!*"

"YUR-R-R-RIGHT, ALBERT. *Double-tight. Just like a Hays Double Seal Connection.*

screwed and caulked openings. It is a good illustration of how almost every line of fittings has been developed.

Speaking of fittings designed to tie the waste and vent stacks together above the highest fixture, we show in

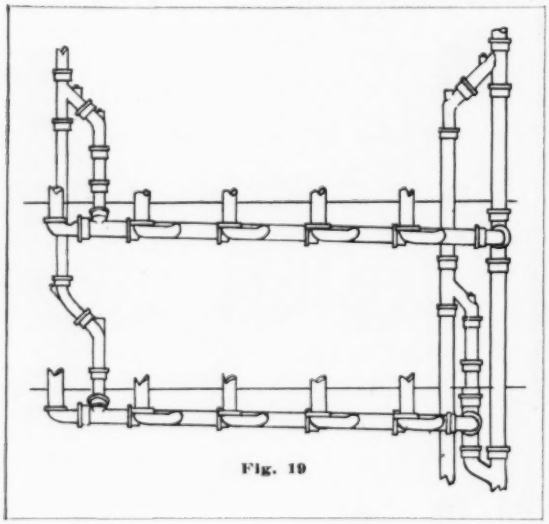


Fig. 19

Fig. 5 part of a line of increasers which have special branches for receiving the vent stack.

Fig. 6 gives an elevation of a screw pipe sink stack, showing sleeved hub sink fittings.

Fig. 7 shows the same layout for a double line of fixtures.

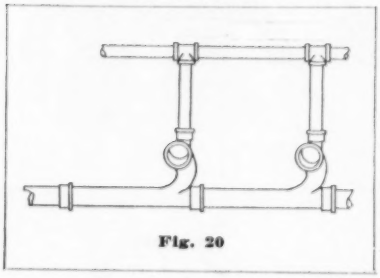


Fig. 20

These stacks when run in tall buildings are generally 3-inch, with 3-inch vent lines. These fittings are also made for 2½-inch waste and 2½-inch vent. It will be noted that all the vent work in Figs. 6 and 7 is done with common fittings, with the exception that a special branch is used between the waste and vent stacks, as indicated.

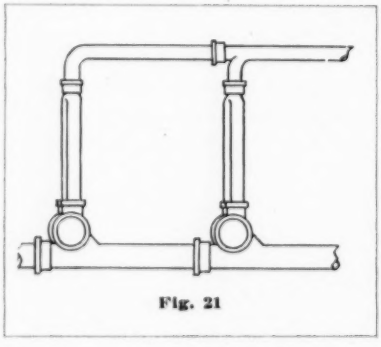


Fig. 21

Designs Meet Definite Special Needs

Nowadays fittings are designed closely to meet definite special needs. For instance, in Figs. 8 and 9 are shown two sink stacks, the layout being designed to meet the demand for the roughing-in of sinks that are set under a window. This is a common location for a sink or lavatory.

Figs. 8 and 9 are for three-floor work. The former shows a screw-pipe installation and the latter is a cast iron job. Both installations show the use of a jump-over vent fitting, a fitting which often allows the installation of a vent stack in a location that would be impossible without its use.

In Fig. 8 the venting is done with straight pipe and common fittings, whereas in Fig. 9 special vent fittings are employed.

Figs. 10 and 11 illustrate very well what we have tried to bring out concerning 3-inch fittings.

Both these illustrations show 3-inch or 4-inch stacks designed for use in buildings of any height. It will be seen that the layout is for two bath rooms, back to back.

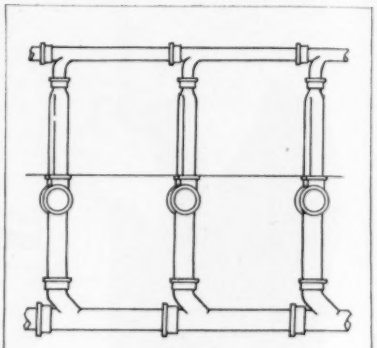


Fig. 22

Fig. 10 shows the use of common fittings and straight pipe, whereas Fig. 11 shows a very clever combination of fittings that are entirely special. It is difficult to see how more could be done with the same number of fittings, both drainage and vent, than is here accomplished. We are interested especially in the vent fittings, and it will be seen that the one vent fitting which serves the two lavatories and two bath tubs matches up with the two waste fittings which serve the same fixtures.

Tying Together of Fittings

The vent fitting which ties the soil and vent stacks together, as shown in Fig. 11, is a cleverly designed fitting. It allows the same type of vent fitting to be used on the top floor as on the other floors, owing to the fact that the branch for the water closet vent enters the fitting in such a way and at such a point that the principal opening of the fitting is in the same relative position.

There are also cleverly designed fittings by means of which the vent and soil stacks may be tied together at the foot of the stack.

We show two such fittings in Figs. 12 and 13.

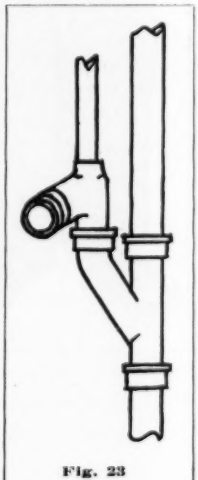
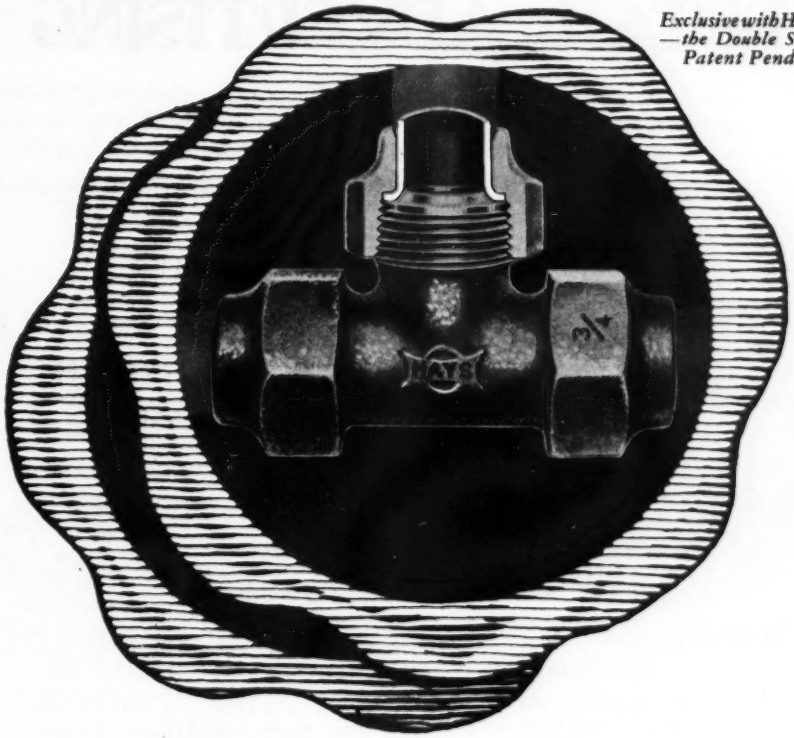


Fig. 23

In Fig. 12 the fitting allows this connecting together of the two stacks, and the connection also of the vent from a water closet below this point of connection or the vent from two water closets back to back.

In Fig. 13 this same fitting is provided with a special vent opening for serving other nearby fixtures. In this illustration is also shown a long double T-Y, used in

(Continued on Page 163)



Exclusive with Hays. —the Double Seal. Patent Pending

DOUBLE TIGHT —because IT'S DOUBLE SEALED

With copper plumbing, installed by the Hays method, you can guarantee joints that are proof against leaking. The Hays Double Seal Connection is certainly a trouble saver!

It is different from any other connection. For it maintains two angles of contact between pipe and connection. A 45-degree angle wedges the pipe tight in position. An *added* 90-degree angle protects the 45-degree seal and acts as a "shock absorber," taking up all pulling strains and vibrations.

Hays Connections are available for all sizes of copper piping in use today. If you have not yet examined a Hays Double Seal Connection, make a point of doing so. Its simple, sure principle will interest you and will show you the big new possibilities in Copper Plumbing.

And be sure to send for our new, illustrated book showing full details, "*The Hays Copper Plumbing Method.*" Free for the asking.

HAYS MANUFACTURING COMPANY, ERIE, PA.

Visit the Hays Booth at the Convention and Exposition of the National Association of Master Plumbers in Boston, June 23rd through the 26th.

HAYS DOUBLE SEAL CONNECTION

RETAIL ADVERTISING SERVICE

On these two pages this week you will find two newspaper advertisements, a sales letter, two publicity items and copy for a mailing circular. The cuts used in the newspaper ads and in the circulars are 35c *each—you use the same cuts for both. If you want to subscribe for the service, you can get material from us for twelve weeks for* $4.20*—we send you two new cuts every other week.*

Sanitation and the Home

IT IS a far call from the rude hut of the savage to the modern home in the civilized world. The savage and his hut of mud and reeds express just the opposite of sanitation and comfort, but civilized man can have everything that contributes to health and comfort. All that science has learned about health, comfort and convenience in plumbing is yours when we plan and install the plumbing equipment for your home. Let us help you plan your plumbing and save money for you where it may be saved with safety.

(In this space your Name, Telephone Number and Address)

NEWSPAPER AD No. 81

WOULD YOU GIVE UP YOUR BATH TUB?

"How often," asked Harry Brown, local plumbing and heating contractor, "do we stop to think of the things we have in this modern and civilized country to make life more pleasant, comfortable and healthful? Think of the poor savage in the far parts of the world who has only a rude hut, made of reeds and clay, without windows and only the rough ground for a floor; with not even a comprehension of running water, bath tubs or kitchen sinks. Put yourself in his place for a moment and think how much you would enjoy living for a month under such circumstances. How soon would you be longing for a comfortable and clean home again, with bath tubs and warm water?"

SALES LETTER No. 36

HARRY BROWN
PLUMBING & HEATING

Two Rivers, N. Y.,
May 17, 1930

MR. EDWARD JONES,
Two Rivers, N. Y.

Dear Sir:

Modern plumbing fixtures are sanitary, and sanitation is the touchstone of health. Worn and old-fashioned plumbing fixtures are seldom attractive to the eye, are difficult to clean and are germ carriers.

If your home still retains some of these old-fashioned fixtures you are not safe-guarding your own or your family's health. And that is a grave error, for it is not economy. New and modernly designed fixtures, made of materials that resist corrosion and the hardest wear, represent the real economy. They are easy to clean and thus save labor for the housewife, and their extra cleanliness reduces the possibility of infection.

We should be glad to have you call at our showroom and look over our stock of modern fixtures.

Very truly yours,
HARRY BROWN

HERE are two newspaper publicity items — clip them and hand them to your local paper. They represent valuable sales help.

PROTECTION!

IF you would save your home from flood, you must have protection; or if you would save your home from thieves, you must have protection. And again, if you would keep the cold out in winter time, you must have the protection of a heating plant, but the heating system itself must have protection, too, if it is to perform efficiently and economically its purpose of warming the farthest corners of the house. In other words, bare pipes are responsible for cold rooms because the radiators never get hot enough. This condition can be remedied very simply and without excessive expense by having these heat wasting pipes insulated.

(In this space your Name, Telephone Number and Address)

NEWSPAPER AD No. 82

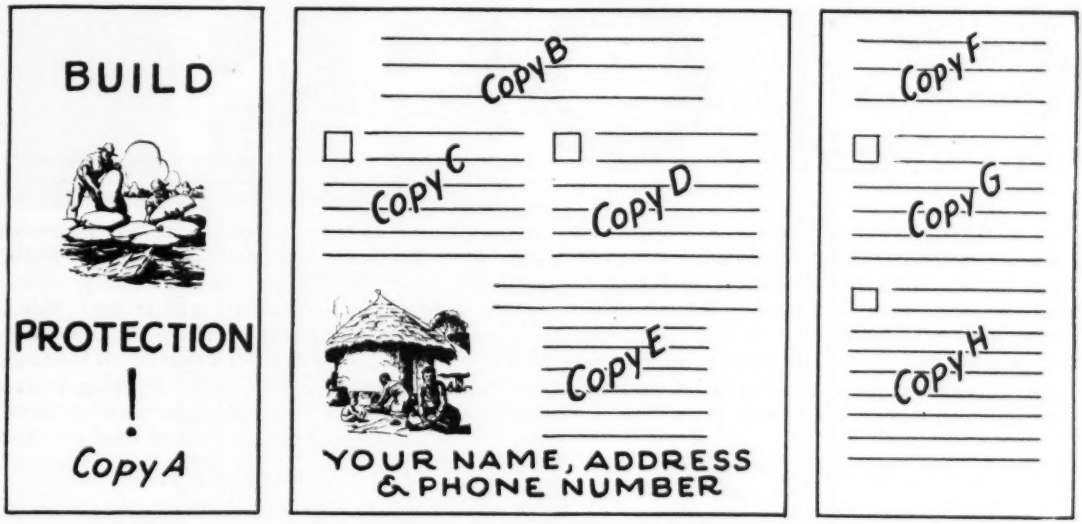
DO YOU CLOSE UP PART OF YOUR HOUSE IN WINTER?

"Some people have to close up part of their homes in the winter time," said Harry Brown, local plumbing and heating contractor, "however, this isn't absolutely necessary—at least, not as long as there is such a thing as insulation.

"You see, when heat has to travel for some distance through bare pipes, some of that heat soon begins to disappear into thin air, and that usually cold air, so that the rooms farthest away from the heating plant don't get much warmth. But you would be surprised at the difference in the temperature of these rooms after the heating lines have been insulated."

Layout and Copy for Circular—No. 11

Below is layout and copy for a four-page circular which can be used as a mailing piece, or which may be used as an envelope stuffer. It ties in with the ads on the other page. Complete instructions are given in the center of the page for handling the printing of such a circular.



PAGE 1 PAGES 2 and 3 PAGE 4

Here is how to handle the printing of a circular like the one shown above

Show this page to your printer. That is all you will have to do. Just above is a "type and rule layout" for the printer to follow. It is, of course, of smaller size than the actual circular, which should be made to fit the average small envelope (which the printer calls a 6¾ inch because that is its length). That means the circular will be three inches wide and six inches high. It will have four pages and will be folded once. The small illustration with this copy shows what it will look like. The words "Copy A," etc., show the printer where each piece of copy is to be placed. The same cuts shown on the opposite page in the newspaper ads will be used in the circular. They cost 35c each.

This is the way the circular will look. Page 4 is, of course, the back cover.

Copy "A" (For First Page)

BUILD PROTECTION!

Copy for Pages 2 and 3—Copy "B"

Take This Protective Measure to Secure Yourself Against Loss

Copy "C"

By covering the pipe lines of your heating system with insulation you are protecting your home against the chill of winter; you are protecting your comfort and your pocket-book. You can cut the heat waste to a minimum and avoid that uncomfortable chilliness so often found in rooms farthest from the heating plant.

Copy "D"

Much heat is lost through radiation from heating plant to radiators because of bare, uninsulated pipes. This means that you are compelled to spend that much more money for fuel without getting the complete benefit of the warmth it originally generated. Insulation keeps the heat traveling through the pipes without waste.

Copy "E"

Is This Sanitation?

Would you like to live like the people in the accompanying picture, without the comforts and conveniences of modern, sanitary plumbing equipment?

Copy "F"

Modern Plumbing Fixtures Mean Sanitation in the Fullest Sense of of the Word

Copy "G"

Old-fashioned plumbing equipment has nothing to recommend it. In the first place it is likely to be difficult to clean and keep cleaned, and therefore is a breeding place for germs. In the second place, it is unsightly and inharmonious in connection with other home furnishings.

Copy "H"

If your home still retains some of these relics of a by-gone era, think now of replacing them with up-to-date fixtures, which give you the assurance of a high order of sanitary protection. Then, you will have added something to the home that will enhance and not mar the harmony of other furnishings.

Russian School Equipment

Plumbing in laboratories and laboratory tables as installed in the Moscow schools of the Soviet Republic

By HAROLD L. ALT

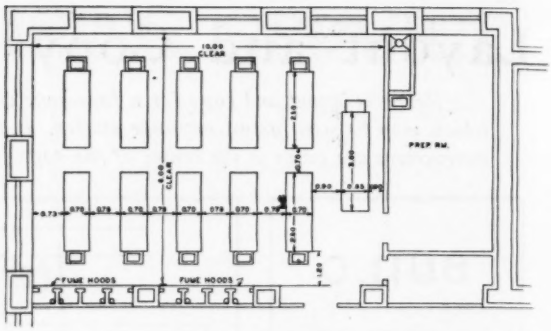


Fig. 1—Typical chemical laboratory arrangement in U. S. S. R. schools. All dimensions are in meters

ONE of the features receiving special attention in the improvements being instigated and carried out in the Union of Socialist Soviet Republics (which may be better recognized by the reader as "Russia") is that of the improvement of the school and educational system. Whereas, in past years education was largely confined to the upper classes, leaving a high percentage of illiteracy among the general population, efforts since the revolution have been concentrated on providing increased school facilities of a higher standard than those previously available except to the wealthy.

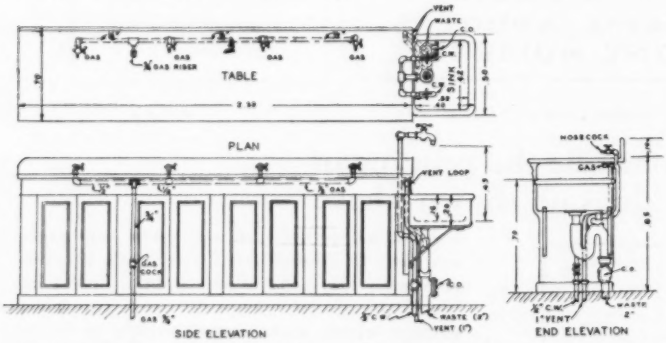


Fig. 2—Pupils' chemistry tables. All dimensions are in meters

In the schools now being constructed in Moscow, which is the capital of the country, many interesting features are being incorporated; in this article, however, an attempt will be made to describe only the laboratories, tables and fume hoods which have been adopted as a standard for installation in all chemistry, physics and biology laboratories.

Chemistry Laboratories

In arranging chemistry laboratories in the Moscow schools, layouts quite similar to those employed in America have been adopted. That is to say, pupils' tables are used, with fume hoods for confining acid fumes, at the side of the room and a teacher's demonstration table, for the instructor, is provided at the front of the room. A typical arrangement such as was installed in one of the schools erected last year (1929) is shown in Fig. 1.

It will be noted that in this room, as arranged, there is maintained a distance of 0.78 meters (31 inches) between the pupils' tables and a distance of 0.90 meters (36 inches) between the class tables and the teacher's table. Back of the teacher's table is a space also 0.90 meters (36 inches), while the middle aisle is kept 0.70 meters (28 inches) wide and the side aisles 1.20 meters (48 inches) except that the sinks project into the side aisles a distance of 0.40 meters (16 inches) as will be seen later. Opening from the laboratory class room is a special preparation room in which a special sink and fume hood are located.

Chemistry Tables

The pupils' tables are constructed of wood with a flat top and a backstop 0.10 meters (4 inches) high as illustrated in the detail shown in Fig. 2. At the end of each table an earthenware sink is placed. These sinks are 0.40 meters (16 inches) wide and 0.50 meters (20 inches) long; they are 0.16 meters (10 inches) deep inside and are supported on flat iron brackets attached to the ends of the tables. Each sink has two cold water faucets, supplied with cold water through a ½-inch cold water line with separate ½-inch compression faucets. The sinks are wasted through 2-inch cast iron waste pipe with an S-trap having two trap-screw cleanouts into a 2-inch line which is equipped with an access plate just above the floor. These plates are attached with bolts and have gaskets to keep them gas tight.

The table tops are 0.70 meters (28 inches) wide by 2.50 meters (8 ft. 4 inches) long, with the tops located 0.85 meters (2 ft. 10 inches) above the floor. Four gas cocks for hose connection are provided along the backs

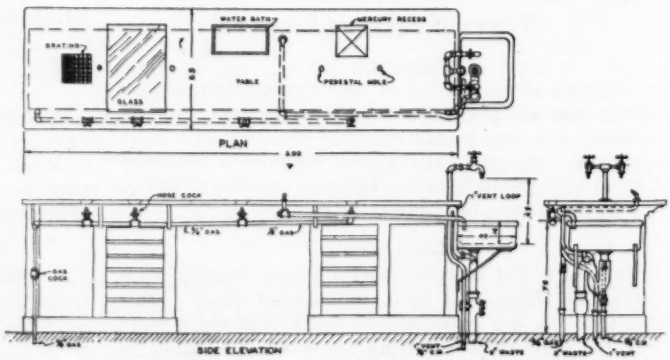
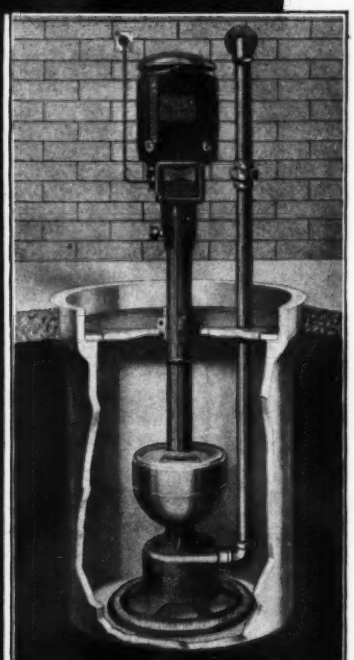


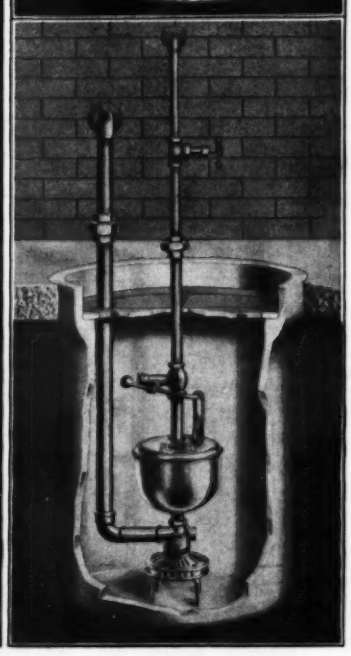
Fig. 3—Teachers' chemistry tables. All dimensions are in meters

RUST PROOF

COPPER AND BRONZE THROUGHOUT



PENBERTHY AUTOMATIC ELECTRIC SUMP PUMP



PENBERTHY AUTOMATIC CELLAR DRAINER (Water Operated)

PENBERTHY PRODUCTS

THE plumbing contractor need not be told the many advantages of building from copper and bronze . . his never-ending work of servicing and replacing steel pipe, fittings and equipment are a constant reminder.

Penberthy Automatic Electric Sump Pumps and Automatic (water operated) Cellar Drainers are built of copper and bronze throughout . . they cannot rust.

The design and workmanship of Penberthy Pumps are as outstanding as the quality of the materials used in them. Consequently, these pumps are trouble-proof as well as rust-proof. Your profit from the sale and installation will not be dissipated in servicing.

There is a type and size of Penberthy Pump for every purpose. Sump covers for both electric and water operated units can now be supplied at slightly additional cost. Penberthy Pumps are stocked by leading jobbers everywhere.

PENBERTHY INJECTOR COMPANY

Established in 1886 — DETROIT — Canadian Plant Windsor, Ont.

PENBERTHY PUMPS REMOVE SEEPAGE WATER

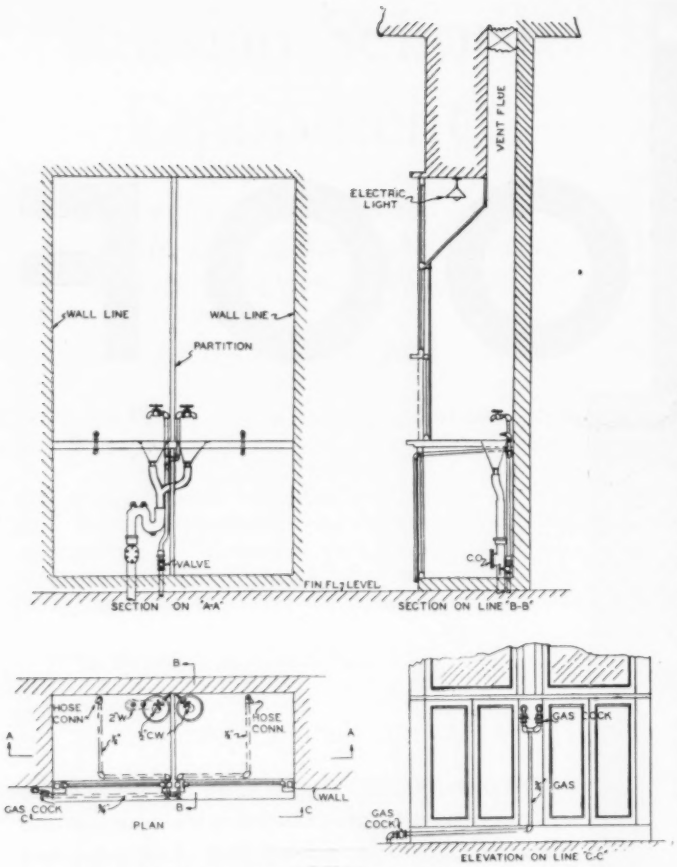


Fig. 4—Detail of fume hoods in chemistry laboratory

of the tables about 0.60 meters (24 inches) on centers. These are fed from a ½-inch gas line run under the table top and fed by a ¾-inch gas line from the floor with a ¾-inch gas cock located in the cupboard under the table. Cupboards with shelves are located under the table and are equipped with four sets of double doors.

The method of venting the traps on these tables is interesting, being the same scheme as that sometimes used in venting a barber's lavatory when set in the middle of the room. The vent is taken off the top of the trap slightly toward the inlet side and is carried up above the top of the sink but below the top of the table; then it returns on itself and is carried back down to the floor, running laterally through the floor construction over to a vent stack located on the interior wall.

The teacher's or demonstration table is shown in Fig. 3. This table is 3.00 meters (10 ft. 0 inches) long and 0.85 meters (2 ft. 10 inches) wide. It is much more elaborate in design than the pupils' tables, as will be noted by referring to the drawing. In general arrangement this table is similar to those used by the pupils, having the same sink at the end, and is piped in a manner similar to the other sinks already described. On this table, however, there is no back-stop and the gas cocks are kept below the surface of the table with an opening cut in the table slab so that the gas tube can be attached to the end of the gas cock.

Special equipment is provided on this table consisting of a mercury reservoir, water bath, grating and pedestal sockets. Underneath the table are drawers and cupboards arranged so as to form two pedestals to support the table top.

Fume Hoods

Referring back to Fig. 1, it will be seen that there are fume hoods arranged along the inside wall in two batteries of four each. A typical detail for a pair of these fume hoods is shown in Fig. 4, where it will be noted that each hood consists of a counter at the back of which is located a small funnel-shaped sink and a gas outlet with a hose end. The control of the gas is from a gas cock located on the front of the cabinet as shown in the elevation on line C-C, and the entire gas line is controlled by a gas cock located near the point where the gas line leaves the floor. Cold water to the sinks is provided by a faucet located directly over each sink with the cold water branch controlled by a stop valve located near the floor, as shown in section A-A of Fig. 4. Under the counter of the fume hood cupboards are placed, and sliding glass doors give access to the interior for working purposes. At the top of the hood an electric light is provided and

(Continued on Page 88)

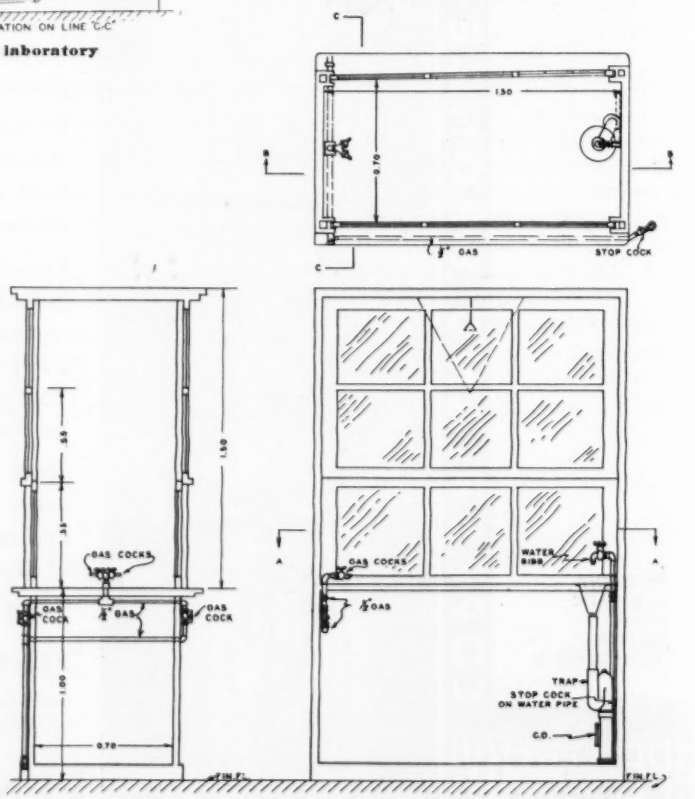


Fig. 5—Plan on line A-A, on top. At lower left, section on line C-C. At lower right, section on line B-B

Wherever plumbers and jobbers push ADD-a-SHOWERS they say

"BUSINESS IS BETTER"

You can say the same if you sell ADD-a-SHOWERS to owners of residences, apartments, hotels, etc;

Mr. Plumber—If you are a merchandiser here is an item that has big profit possibilities. Every "shower-less" tub in your city is a prospect. Add-a-Shower is a quick seller especially in larger buildings like apartments and hotels. In your drive for all kinds of business this spring and summer, use Add-a-Shower as a leader. It will develop orders on other fixtures.

Mr. Jobber—If your salesmen are scratching for orders, they'll have better luck with Add-a-Shower. Why not put on a real drive among your sales force on this profitable fixture? It's a good seller and a good repeater—hundreds of orders can be taken in your territory by live wires.

Send for a copy of our new 76-page catalog, just off the press, which illustrates the full Add-a-Shower line and other good items.

MAIL THE COUPON TODAY

THE CHICAGO FAUCET COMPANY
2700-22 N. Crawford Ave., Chicago, Illinois

Send us a free copy of your new catalog, and full particulars on Add-a-Shower.

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CHICAGO FAUCETS

Taking the radiator out of interior design

— by putting it in any "waste space" available four inches or more deep. That's what they did in the exacting Rodin Museum installation, thanks to the Robras 20-20 Radiator.

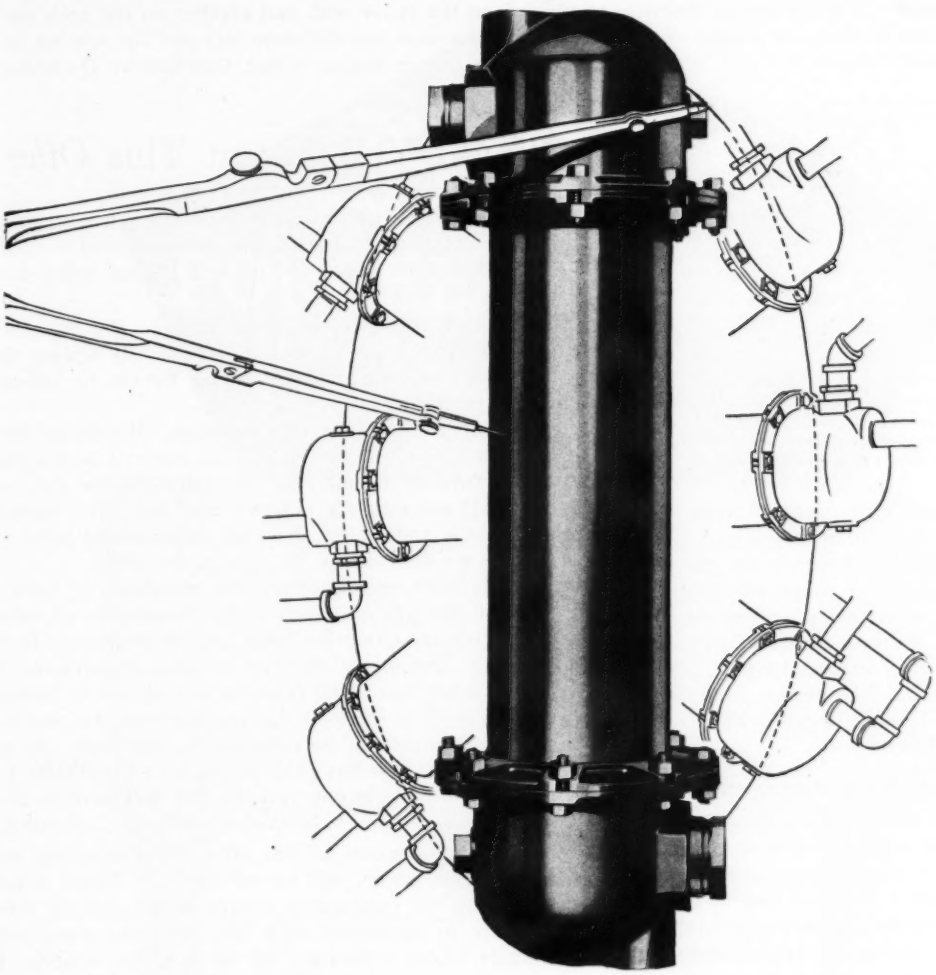
Your customers will like the idea of hidden heating . . .

You will like to handle these compact brass radiators. You'll find them only 20 per cent the weight and 20 per cent the size of equal cast-iron radiation. Meaning . . . that two men can install four or five times as many in a day.

Furthermore, there are interesting profit possibilities in the handling of these sturdy, electrically-welded, fast-heating, Robras 20-20 brass radiators. We'll be glad to tell you more . . . send you price list and data sheets. Your name and address please... ROBRAS 20-20

ROME BRASS RADIATOR CORPORATION, ONE EAST FORTY-SECOND STREET, NEW YORK, N.Y.

I T W O R K S A T A N Y A N G L E



...an ALL-BRASS heater that "goes" anywhere

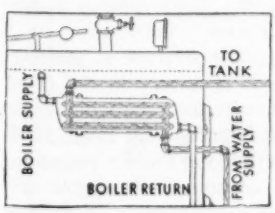
. . . and makes possible these things:

An end to precipitation and subsequent frequent shut-downs for cleaning out sediment.

Installation in either vertical or horizontal positions without friction-producing return.

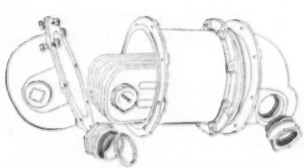
Maximum surface contact in wide stream-lined waterways, for domestic hot water.

Exteriors of waterways in turn designed to form a minimum of resistance to the passage of the heating element.



Consequently, rapid flow of heating elements and rapid transference of heat.

Underlying all of this is the fundamental advantage of this hot water generator. All parts are made of brass. The waterways are made of brass pressed and electrically welded together. The outer shell is highly polished and makes an attractive addition to the boiler room. (The heater can be had with a 6-ply brass covered insulating jacket where desired.) Because there is more water surface in less space Aulbras heaters are smaller and lighter than those with the cast iron shell. Capacities range from 120 to 10,000 gallons with temperature rise of 100° in three hours.



We'll be glad to tell you more. Write us...

AULBRAS

ROME BRASS RADIATOR CORPORATION, ONE EAST FORTY-SECOND STREET, NEW YORK, N.Y.

back of this is the exhaust connection for the hood.

Where the layout makes it necessary or desirable to place the fume hoods out in the room instead of against a masonry wall, the design shown in Fig. 5 is employed.

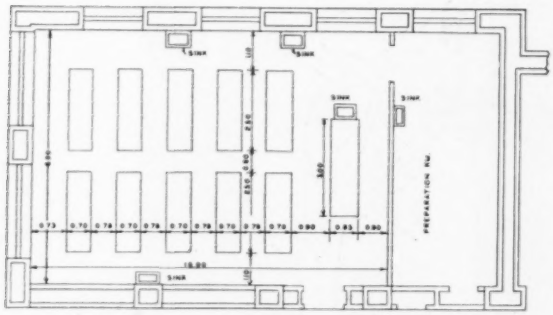


Fig. 6—Arrangement of biology laboratories in U. S. S. R. schools. All dimensions are in meters

This is modelled after the style employed when the hoods come against the wall, except that they are provided with glass doors on both front and rear. The gas piping is also very adroitly run so as to permit control from either side, it only being necessary to close the gas cock on the opposite side in order to do this. These cases are made 1.50 meters (5 ft. 0 inches) long by 0.70 meters (2 ft. 4 inches) wide and 1.50 meters (5 ft. 0 inches) high, the counter level being placed 1.00 meter (3 ft. 4 inches) above the floor.

Biology Laboratory Arrangement

Biology laboratories are usually arranged with about ten pupils' tables (2.50 meters or 8 ft. 4 inches long by 0.70 meters or 2 ft. 4 inches wide) and one teacher's table (3.00 meters or 10 ft. 0 inches long by 0.85 meters or 2 ft. 10 inches wide), the teacher's table having a sink at one end. The other tables are without sinks, but two sinks for pupils' use are provided on the pilasters between the windows in the outside wall, and one sink is

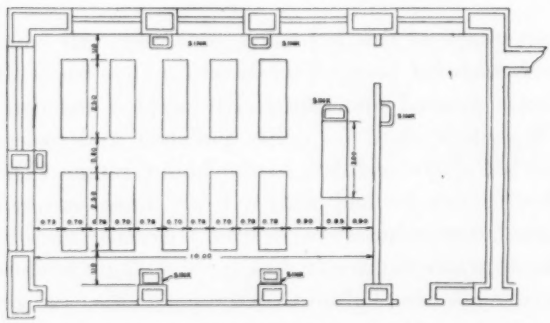


Fig. 7—Arrangement of physics laboratories in U. S. S. R. schools. All dimensions are in meters

also installed on the corridor wall as shown. Spacing between tables is kept at 0.78 meters (2 ft. 7 inches). In the preparation room, which connects with the Biology Laboratory, is located a fifth sink.

Physics Laboratories

Physics laboratories are quite similar to the biological laboratories in arrangement, as will be seen by referring to Fig. 7. There is, however, one additional sink provided on the inside wall and another on the back wall. The tables used are the same size and the spacing and arrangement are similar to that described for the biology laboratories.

Would You Accept This Offer?

(Continued from Page 58)

have a very rude awakening if he would figure his overhead in relationship to his productive labor, and he could very easily prove a 40 or 50 per cent loss on such a proceeding."

And J. L. Murphy, president of J. L. Murphy, Inc., of New York City, is no less emphatically against the acceptance of such an offer, citing figures to indicate why it cannot be done:

"It is hard to answer your question. We do not furnish labor if we do not furnish the material on the job. If we furnish the material and labor on the job, we charge 15 per cent for our overhead and, after making that charge and adding it to the material and labor on the job, we then charge 10 per cent for profit.

"It is very unsatisfactory for plumbers to furnish labor on the job, inasmuch as the plumber at all times guarantees not alone the labor but the material. If he does not furnish the material he cannot guarantee it. The plumber furnishing labor on the job has to furnish practically all of the tools that the workmen use, and the charge of furnishing the tools will be very high. As an instance, our firm has paid as much as $16,000.00 for repairs and tools in one year, so that will have to be a matter that will have to be worked out by the individual."

Further comments on this offer, from plumbing and heating contractors, will be published in future issues. Naturally, the conclusions arrived at by each of these men are in agreement with Mr. Peel and those contractors whose replies are set forth in this article. If such offers are being made generally around the country (and there is reason to believe that they are being made) these opinions ought to have some value as giving sound reasons for refusing such contracts.

◆

Electric Air Heating

For estimating the required heater sizes for heating, the method standardized by the American Society of Heating & Ventilating Engineers for calculating heat losses can be used. The total calculated loss in B.t.u. is directly converted into the estimated kw. capacity by dividing by 3412. No allowance need be made for inefficiency. To provide for rapid preheating, 15 to 20 per cent is added to the amount calculated to maintain the required indoor temperature. This creates a condition comparable to the increased condensation of a radiator due to the lower room temperature at starting. With electric air heating this is necessary in the event that the heating is done intermittently, in which case the starting temperature may be relatively low. This over-capacity will not increase the total kw.-hr. consumption but will prove to be an economy. A simple and easy means for comparing the relative costs of electric air heating in two separate regions may be made through the aid of the degree-day unit.

FORDS
PORCELAIN TRAYS

A Far Reaching Opportunity

The sale of a Fords Porcelain Wash Tray does not end with the completed installation and the profit even though that is good. Instead, it leads to the sale of many other items of porcelain such as sinks and lavatories. Once your customer has seen the advantages of porcelain sanitary ware, the rest will be easy.

Let us send you proof of Fords Porcelain superiority.

Let us show you how and why it will materially increase your volume of business and consequently your profits.

Write us today!

FORDS PORCELAIN WORKS

PERTH AMBOY, NEW JERSEY

MANUFACTURERS OF SANITARY WARE

MEETING ARCHITECTURAL STANDARDS OF QUALITY

Criminal court house and jail building, New Orleans, La. Diboll & Owen, Ltd., architects; E. A. Christy, associate; Sciambra & Masino, plumbing contractors; Solid Nickel Silver plumbing fixtures by The John Douglas Co., Cincinnati, Ohio.

Municipal auditorium, New Orleans, La.; Favrot & Livaudais, architects; O. G. Rose, plumber; Solid Nickel Silver plumbing fixtures by The John Douglas Co.

THESE TWO MODERN NEW ORLEANS BUILDINGS EQUIPPED WITH SOLID NICKEL SILVER PLUMBING FIXTURES *by* DOUGLAS

THE use of Solid Nickel Silver plumbing fixtures in these modern New Orleans municipal buildings is evidence of the increasing popularity of this type of durable, sanitary equipment. Solid Nickel Silver fixtures are ideally suited to the exacting requirements of public buildings, hospitals, schools and office buildings. This beautiful white Nickel alloy is solid ... it retains its lustrous, clean-looking appearance under severe use. Possessing the hardness, toughness and strength of tough bronze, Solid Nickel Silver fixtures provide unusual wear-resistance ... particularly in valve seats. They cannot chip or craze during installation or use. Where architectural standards demand beauty and practical wearing qualities in sanitary equipment, no other available material can take the place of Solid Nickel Silver.

18% 22 Nickel SILVER

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

SUPPLY NEWS

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

R. T. Clarkson Co. Sells Little Rock Branch

R. T. Clarkson Co., plumbing and heating wholesaler of Memphis, Tenn., has sold its branch at Little Rock, Ark., to the Central Supply Co. of Little Rock, which company has operated a mill supply business in that city for a number of years, covering Arkansas and adjoining states. The Clarkson company established its Little Rock branch in July, 1925.

The Central Supply Co. has taken over the entire force of the former Clarkson branch, and E. A. Reichardt, former manager, is in charge of the plumbing and heating department. C. C. Rose is president of the Central Supply Co., and T. Cotnam, secretary.

◆

J. D. Tschopik Resigns from Standard Sanitary Manufacturing Co.

At a recent meeting of the board of directors of Standard Sanitary Mfg. Co., Pittsburgh, Pa., the resignation of J. D. Tschopik, vice president and general manager of branches, a member of the board of directors, and a member of the executive committee, was accepted. Frank S. Kaulback was elected to fill the vacancy created by Mr. Tschopik's resignation and, effective May 1, became vice president and general manager of branches, a member of the board of directors and of the executive committee. At the same meeting, A. M. Maddock was elected to the board of directors.

◆

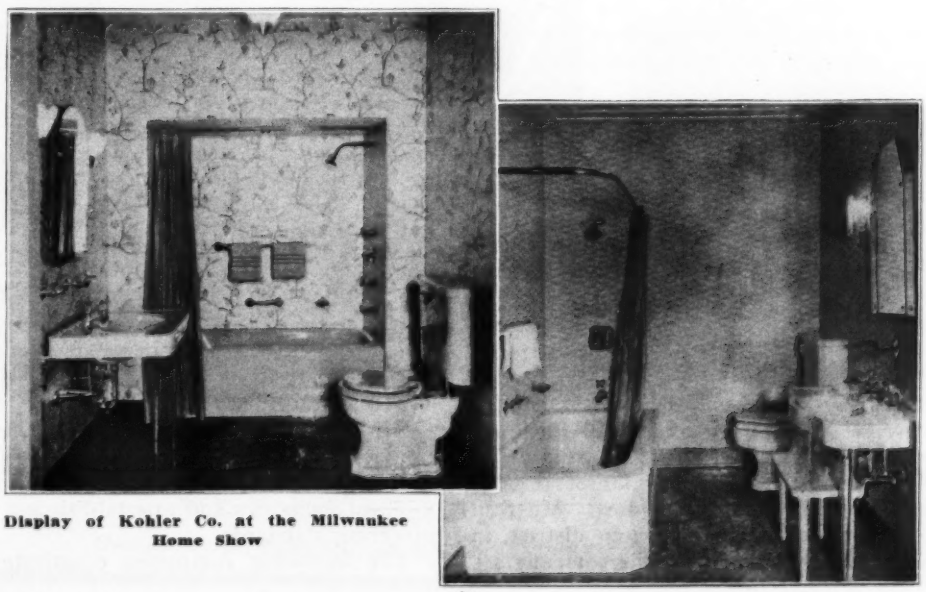
General Pipe & Brass Co. Starts In Business

The General Pipe & Brass Co., which was recently organized to deal in plumbing and heating supplies, has started in business at 3931-3933 Olive street, St. Louis, Mo., in its own building, which contains 16,000 sq. ft. of floor space. The president of the new concern is Julian Schwander, and Roger Walwark, Jr., is vice president.

◆

Purchases Plant and Business of Graver Corp.

Phoenix Mfg. Co., Joliet, Ill., has purchased from the Graver Corp., its steel tank, water treating and steel plate construction business, including the plant at East Chicago, Ind. The Phoenix Mfg. Co. will operate this



Display of Kohler Co. at the Milwaukee Home Show

The new showroom of the Phillips Lead & Supply Co., Providence, R. I.

plant and business under a wholly owned subsidiary company, to be known as Graver Tank & Mfg. Corp. The plant at East Chicago has a fabricating capacity of over forty thousand tons of steel per year. The new corporation will maintain branch sales offices in Chicago, Ill., New York City, Dallas, Tex., St. Louis, Mo., San Francisco, Calif., and several other large centers. The general offices will be located at East Chicago, Ind.

The officers of the Graver Tank & Mfg. Corp., are Edward N. Gosselin, president; F. C. Everitt, vice president and general manager; R. E. Meyer, secretary and treasurer; P. S. Graver, vice president in charge of sales; W. F. Graver, vice president; H. S. Graver, vice president.

◆

Noland Co., Inc., Opens Chattanooga Warehouse

Noland Co., Inc., Newport News, Va., formally opened its new warehouse in Chattanooga, Tenn., on the evening of April 28. About sixty master plumbers and out-of-town guests were present to partake in the southern barbecue. The warehouse, at 115 Market street, recently has been remodeled to meet the requirements of the company. John Eckerly is the manager.

◆

American Radiator & Standard Sanitary Corp. Pays Dividend

American Radiator & Standard Sanitary Corp., New York City, announced a dividend of $1.75 on its preferred stock to stockholders of record at the close of business May 15, and $3.75 per share on common stock payable June 30 to stockholders of record at the close of business June 11.

◆

Moves New York City Offices

The Humphryes Mfg. Co., Mansfield, Ohio, has removed its New York City offices to 501 Fifth avenue, under the management of J. L. Stulsaft. A display of the company's colored fixtures is being arranged in a showroom at that address. Mr. Stulsaft will cover the entire Metropolitan district, including northern New Jersey, for the company.

Opens New Display Rooms in Providence

The Phillips Lead and Supply Co., Providence, R. I., opened its attractive new display rooms at 231 South Main street, in that city, on Saturday, April 5. The formal opening was attended by many visitors.

◆

Central Tube Co. Moves Philadelphia Office

The Central Tube Co., Pittsburgh, Pa., moved its Philadelphia office from the Morris building to 519 Broad Street Station building, Pennsylvania boulevard and the Parkway, on April 22. H. J. Kleinman is district sales manager in the Philadelphia office of the company. M. B. Squires, formerly district sales manager in the Boston, Mass., office of the company, is now associated with Mr. Kleinman as assistant district sales manager.

◆

Nason Mfg. Co. Elects New President

At the monthly directors' meeting of Nason Mfg. Co., New York City, held on May 1, Raymond Seabrook, formerly secretary of the company, was elected president, to succeed his father, the late H. H. Seabrook. John Harmon continues as vice president, and Thomas F. Larkin, treasurer, also assumes the office of secretary. Raymond Seabrook, the fourth of his family to head this ninety year old concern, founded by his grandfather, the late Joseph Nason, has been with the company for nineteen years. Mr. Harmon has served forty-five years and Mr. Larkin forty years.

◆

Midwest Stoker Association Is Organized

The Midwest Stoker Association was organized in Chicago on May 5, with the following officers: E. L. Beckwith, president; R. C. Goddard, vice president; W. N. Edwards, secretary-treasurer; A. O. Dady and C. E. Berry, directors. The purpose of the association is to promote ethical standards in the stoker business; to co-operate with the other associations in allied industries and to establish and promote engineering standards.

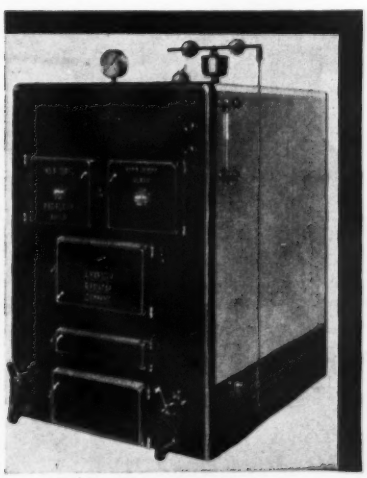
The following companies constitute the list of

This APARTMENT now brings $1850 MORE each year . . . because it has modern AMERICAN RADIATOR equipment

When you install American Radiator heating equipment in any building you are adding many times its cost to the value of the building. That statement has often been made, but here are facts that prove it to be true. The 22 apartment building shown here formerly had combination coal stoves throughout for heating and cooking. Two years ago the owner installed American Radiator heating at a total cost of $2700. He has already received more than this cost in the increased rent which tenants were glad to pay.

● Show this advertisement to prospects. We will be glad to furnish them with the complete information about this installation and tell them how our easy payment plan gives them two years to pay although you get your money at once.

22 Apartment Building at 70 East 119th Street, New York City. Henry Wasserman, Owner. M. Schwartz, Heating Contractor.



AMERICAN RADIATOR COMPANY

40 WEST 40TH STREET, NEW YORK CITY

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

charter members: Detroit Stoker Co., Detroit, Mich., Whiting Corp., Harvey, Ill., Combustioneer, Inc., Chicago, Economy Stoker Co., Delta Co., Inc., North Chicago, Ill., Iron Fireman Mfg. Co., Portland, Ore., The Brownell Co., Dayton, Ohio, Auburn Stoker Corp., Auburn, Ind., and Modern Coal Burner Co., Chicago, Ill.

The next meeting of the association is scheduled for May 19, at the Press club and, according to present plans, bi-weekly meetings will be held thereafter.

◆

Pittsburgh Tube Co. Opens Philadelphia Office

The Pittsburgh Tube Co., Pittsburgh, Pa., has opened a district office in Philadelphia, Pa., at 2814 North Broad street. Russell D. Knight is in charge of this office, which will cover the regular Philadelphia territory, consisting of eastern Pennsylvania, southern New Jersey, Delaware, District of Columbia, Maryland and Virginia.

◆

Moves New York City Office

The Pittsburgh Valve and Fittings Co., Barberton, Ohio, has moved its New York City office to 165 Broadway. C. P. Gabosch is eastern district manager.

◆

Opens Office in Milwaukee, Wis.

The Rome Brass Radiator Corp., New York City, has opened a new office at 518 Empire building, West Water street and Milwaukee avenue, Milwaukee, Wis. The new office is under the management of P. F. Callaghan, Jr., who was transferred from the Chicago office of the corporation.

◆

New Jersey Golfers to Play May 22

The Plumbing and Heating Trades Golf Association of New Jersey has set May 22 as the date for its next meet. The original date, May 20, conflicted with that set by the Metropolitan Trade Golf Association. Jesse Thorne of The Trenton Potteries Co., Trenton, N. J., will be host to the members at the Trenton Golf club.

◆

Will Represent Kieley & Mueller in Philadelphia

Kieley & Mueller, Inc., New York City, has announced the appointment of Walter H. Eagen & Co., of Philadelphia, Pa., as its direct factory representative in the Philadelphia territory.

◆

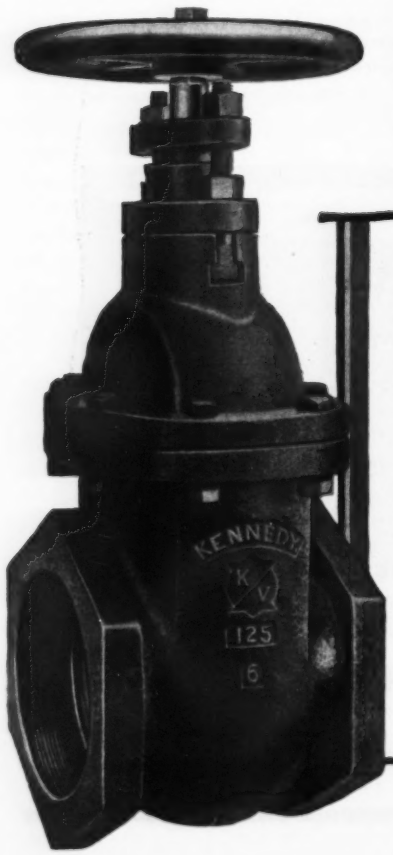
American Radiator Co. Moves Los Angeles Office

The American Radiator Co., New York City, has recently moved its Los Angeles, Calif., office from the Quinby building to 3251 Wilshire boulevard. DeWitt Clark is manager of the Los Angeles office.

◆

Metropolitan Trade Golfers Play Lenox Hills

Preliminary to beginning its regular golf schedule the Metropolitan Trade Golf Association held a tournament on April 24, at the Lenox Hills Golf club, Farmingdale, Long Island. T. A. Larkin, vice-president was host. Despite the cold and high wind that



KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS

TIGHT closure against vacuum or high pressure, instant release at the first motion of the hand-wheel, effortless opening or closing—these important operating features are all characteristic of Kennedy Valves. And equally important, Kennedy Valves are thoroughly reliable at all times, whether infrequently operated or opened and closed several times a day. For over half a century and in hundreds of thousands of installations, engineers have been learning the many advantages of standardizing on Kennedy Valves.

The Kennedy Valve Mfg. Co., Elmira, N. Y.

Branches in Principal Cities

Write for the Kennedy Catalog

prevailed all during the day T. A. Johnson turned in cards of 83 and 80 while Lew Powers won the prize of the day, a set of three clubs. P. C. Platt and Mr. Powers tied for first honors in the kickers' handicap. Few of the ten players who participated kept track of their strokes so that it was impossible to make a compilation of the scores. The first regular meet of the season is to be held at the Tamarack Country club, Port Chester, New York, on May 20.

◆

Chicago Oil Burner Association Appoints Committees

The regular monthly meeting of the Chicago Oil Burner Association was held on Monday evening, April 21, at the Maryland hotel, with forty-five members and guests present for dinner. B. K. Eaton, president of the association, reviewed the seventh annual exposition and convention of the American Oil Burner Association, which was held in Chicago.

At a meeting on Friday noon, April 25, the following were appointed to serve as chairmen of the 1930 standing committees: H. E. Risher, entertainment; J. W. Owens, membership; I. M. Nelson, members complaint; F. C. Staples, fire investigation; T. N. Andrew, co-operation; H. C. Bitter, program.

◆

New England Heating Trades Golfers Meet

Members of the New England Heating Trades Golf Association not only had Old Man Par to fight at their first tournament of the year, held at the Wollaston Golf club near Boston on Wednesday, April 23, but also a near gale which swept out of the northwest. Wollaston, a difficult course under the most pleasant conditions, proved especially formidable with such a strong gale blowing.

As a result, scores under 100 were few and far between. E. T. Keefe, with an 88, was one of the few whose gross was under three figures, winning a sweater and socks set which was the loot for the low gross. Joseph Stein beat Mr. Keefe's figures with an even 80 and took the guest prize. Among other winners were: Edward Dunn, Thomas O'Callaghan, Amos Bartlett, William Earl, Joseph Hern, John G. Ross and Thomas Swan.

The meet was one of the largest the association has ever held, despite the adverse weather conditions, 48 turning out. At the dinner which followed the game, President Coll Flint introduced a half dozen new members and also asked several guests to take a bow. It was announced that the next tournament will be held at the Nashua Country club, Nashua, N. H., on May 20.

◆

Richardson & Boynton Organization Holds Bowling Match

Members of the organization of Richardson & Boynton Co., New York City, recently engaged in an interdepartment bowling contest. Teams representing the executive division, the branch offices and plants of the company, were entered. Individual and team prizes were awarded. The team representing the Utica general office, composed of Messrs. Urtz, Hammes, Fogarty, Ewing and Ackerman, won first place.

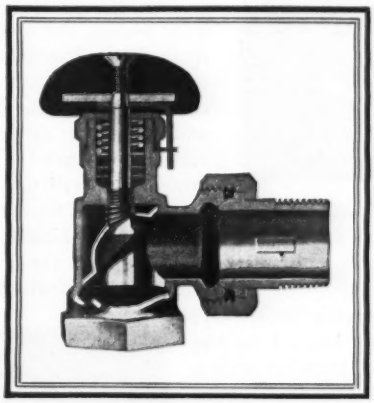
When radiator valves

leak

YOU GET A REPAIR JOB

BUT

does it pay you a profit?



ARCO PACKLESS VALVES

cannot leak . . .

ON a new job—return trips to repack leaking radiator valves not only cost you money and time, but owners blame you for a faulty installation.

When you install Arco Packless Valves you are insuring not only your profits but your reputation as well.

Arco Packless Valves are handsome in appearance, last indefinitely, open with one smooth turn and insure owners against damage from leaks. They require no repacking, so they cost less than the old-style valves that make a return trip necessary.

STANDARDIZE ON ARCO PACKLESS

No. 999 for Steam
No. 901 for Water

A complete line of Packless Valves for steam, water, vapor or vacuum. Made in Angle, Corner, Globe and Gate patterns.

AMERICAN RADIATOR COMPANY

Makers of a complete line of guaranteed heating accessories

C. L. Weber & Co., Inc., Is Now in New Building

C. L. Weber & Company, Inc., Philadelphia, Pa., wholesaler of plumbing and steam supplies, recently moved into its new building at 2926-28 North Eleventh street, in that city. The new building, which was designed to expedite the handling of incoming and outgoing materials, is two stories high and contains 20,000 sq. ft. of floor space. A driveway through the center of the building makes it possible to load and unload merchandise with one handling. The stock room contains 2,400 steel bins.

C. L. Weber

The photograph on this page shows the two attractive show windows which extend over practically the entire front of the building, and also the driveway referred to above. The windows are artistically decorated and are kept lighted at night. It is estimated that in the neighborhood of 70,000 persons pass the store each day and the company has received many favorable comments concerning its display.

The office is located on the second floor, together with a small display room containing both plumbing and heating equipment.

W. Harold Mitchell

An innovation is a public comfort station adjoining the store. The company felt that inasmuch as it was trying to sell others on the idea of public comfort stations that it should set the right example by installing a public comfort station of its own.

The company was organized and incorporated in 1919, its first business location being at 1118 West Somerset street. Three years later it annexed the adjoining property at 1120 Somerset street, and two years after that opened a warehouse at 2630-34 North Hutchinson street. Its next move was to its new building on North Eleventh street.

Christian L. Weber is president and general manager of the company. He was connected with another supply house prior to the organization of the Weber company and before that was a master plumber for ten years.

W. Harold Mitchell, secretary and treasurer of the firm, has been connected with the plumbing and heating supply business for a number of years. He served one year as treasurer of the Plumbing Supply Association of Philadelphia, one year as chairman of its executive committee and two years as president. Mr. Mitchell is also a past president of the Plumbsteam Club of Philadelphia and at present is serving on the program committee of the Eastern Supply Association.

◆

W. J. Hebenstreet's Son Named for Honor Society

William J. Hebenstreet, Jr., the son of William J. Hebenstreet, manager of the Kansas City, Mo., branch of Kellogg-Mackay Co., Chicago, is one of three pupils at the Shawnee Mission Rural high school, Kansas City, designated as eligible to receive membership in the National Athletic Scholarship Society. Qualifications necessary for eligibility to membership in the society include high scholarship standing, an athletic letter and high type of citizenship. Young Hebenstreet is a member of his school's football team.

W. J. Hebenstreet, Jr.

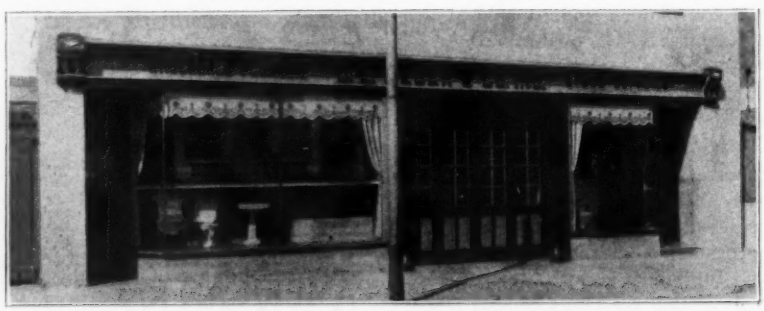
◆

Quaker Mfg. Co. Holds Sales Conference

The Quaker Mfg. Co. held its fifth annual sales convention at its general offices in Chicago on April 9, with distributors and dealers from the United States and Canada present. M. F. Cotes, president of the company, presided.

The convention opened with a talk by L. A. Almgren on the methods used in manufacturing the company's products, and James L. Breese, Jr., talked on combustion principles. M. R. Schoenfield, vice president and general manager of the Draft-A-Justor Corp., Chicago, was another speaker on the program.

A. T. Atwill, sales manager of Quaker Mfg. Co., told of successful selling methods which have been developed by dealers in various parts of the country. S. O. Andros, sales promotion manager, presented the company's new consumer literature. Homer J. Buckley,



The new building of C. L. Weber & Co., Inc., Philadelphia, Pa.

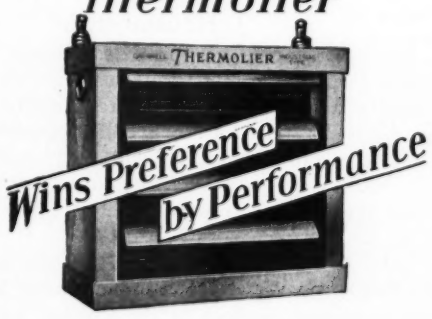
Compare Thermolier

WITH ANY OTHER UNIT HEATER

FOR····

1. Amount of heat per dollar of cost
2. Installation expense
3. Ease of erection
4. Actual heating results
5. Maintenance cost
6. Responsibility of the maker

Thermolier



HEAT WITH UNIT HEATERS

10,000 Units in Use

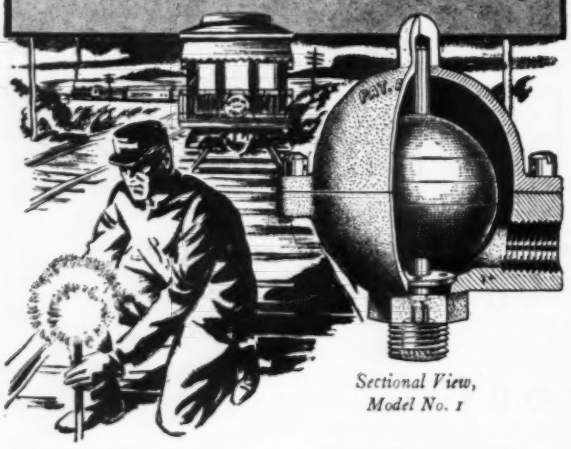
Some 10,000 Thermoliers are in active use in a great variety of occupancies. Our heating experts have doubtless already solved conditions paralleling yours. Why not get their advice, or write for the booklet on heating called "Fourteen Points of Superiority?" There is no obligation on your part. Address Grinnell Company, 307 W. Exchange St., Providence, R. I.

GRINNELL COMPANY

Executive Office: Providence, R. I.

Branches in all Principal Cities

Shoulder to shoulder in the service of safety



Sectional View, Model No. 1

Red Flares . . . and Red Tops

Brakes screech in the night. A train grinds to a halt at an unscheduled stop. The trainman races back to light a blazing flare . . . a signal to trains that may follow.

Like the trainman's signal in the service of safety, the red top of a Red Top Relief Valve is a symbol of safety in another sense. It identifies a pressure relief valve which, installed in a domestic hot water supply system, forestalls disaster and destruction when pressures rise to the danger point.

Working on the unfailing gravity principle, Red Top Model No. 1 may be set to relieve at 50, 75, 100 or 130 pounds. It provides positive insurance against range boiler and tank heater explosions and ruptures in piping and fixtures caused by excessive pressures.

Positive in action, Red Top Model No. 1 as well as Models No. 2 and No. 3 for hot water house-heating systems, bear the approval of the Underwriters' Laboratories, Inc., America's foremost testing organization.

Send the coupon for complete information.

NEPTUNE METER COMPANY
50 E. 42nd Street New York City, N. Y.
Branch Offices in Principal Cities

Red Top Relief Valve

NEPTUNE METER CO. D.E. 5-17-30
50 East 42nd Street, New York, N. Y.

Please send me a copy of the new edition of your folder, "Protection," which describes Red Top Relief Valves and their operation.

Name .....
Street .....
City .....
State .....

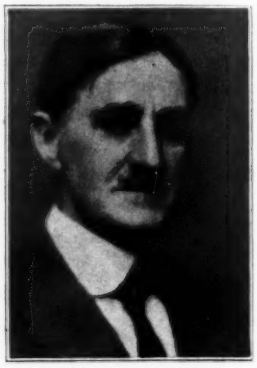
president of Buckley, Dement Co., addressed the gathering on modern merchandising methods.

The annual banquet was held at the Sherman House in the evening, with a short talk by Lawrence W. Scudder, chairman of the board and R. Douglas Stuart, a member of the board of directors.

Obituary

F. H. Gaylord

F. H. Gaylord, president of Hoy & Co., Inc., Albany, N. Y., died April 16 at the Albany hospital, where he was taken suffering from heart disease. Mr. Gaylord, who was well known throughout the country, began his business career with Hoy & Co., one of the oldest plumbing and heating wholesale concerns in the country, over thirty years ago. He was active for many years in civic affairs, having been a member of the Albany Rotary club. He was also president of the Wolferts Roost Country club and had been a former president of the Old Philologians.



F. H. Gaylord

Mr. Gaylord was master of Ancient City Lodge about fifteen years ago and was a member of the Shrine. He lived at 104 North Manning boulevard, was in his fifty-fifth year, and is survived by his wife.

J. H. Lamberger

Jacob H. Lamberger, formerly manager of the Pittsburgh, Pa., jobbing branch and sub-branches of Standard Sanitary Mfg. Co., died at Mercy hospital, Pittsburgh, on April 23. He was in his fifty-seventh year. Mr. Lamberger's first association with the plumbing and heating industry was with the Pittsburgh Supply Co., which some years ago was purchased by Standard Sanitary Mfg. Co.

Later he succeeded Frank S. Kaulback as manager of the company's Water street branch, when Mr. Kaulback was appointed manager of the Chicago jobbing branch. Mr. Lamberger retired from business several years ago. He was a Mason and a member of several other fraternal and social clubs.

Albert G. Heston

Albert G. Heston, for the past nineteen years sales manager for the Roberts-Hamilton Co., Minneapolis, Minn., died in that city on April 24. He was stricken while at his desk in the afternoon and died the evening of the same day at St. Barnabas hospital. Mr. Heston was born in Philadelphia, Pa., in 1868, where he started in the plumbing supply business. He later moved to St. Paul, Minn., where he was for several years in the employ of Western Supply Co. Before joining the Roberts-Hamilton Co., he was sales manager at Minneapolis for the National Brass & Metal Co.

The Merchandising of Gas Appliances*

By GEORGE G. GEBHART

George G. Gebhart

I HAVE been asked to address you today as a representative of the National Gas Appliance Manufacturers Association, and the subject assigned me has been "The Merchandising of Gas Appliances."

Before we go any further, let us consider:

First—What is merchandising?

Second—What constitutes the field for your activity?

Third—The methods to be employed.

Fourth—The selection of proper appliances.

Fifth—The results to be obtained by your merchandising effort.

To refer to the first subject, there have been many definitions offered for this term "merchandising." However, we believe that merchandising is an art. It is the art of creating in the public's mind a desire for the merchandise you have to offer for sale. This desire must also be created so that you can sell your merchandise at a profit.

Your field is very attractive and is all around you, particularly in your immediate neighborhood, or city, or among the customers whom you have served since you have engaged in your particular line of business.

In order that you may visualize this field more closely, let me give you some figures that represent a country wide survey recently completed, to show the vast field of gas users which is before you.

Of the 27,850,000 families residing in the United States, 12,970,000 cook with manufactured and natural gas; 8,290,000 cook with coal and wood; 6,000,000 with oil, and 590,000 with electricity. Data from the American Gas Association and the U. S. Census Bureau show that there are 10,830,000 homes served with manufactured gas and 3,730,000 homes served with natural gas, making a total of 14,560,000 homes connected to gas mains. There are 12,977,000 gas ranges."

You can see from this that the gas consumers far outnumber those using any other commodity for fuel. Not only do you have millions of families using gas at the present time, but you have a field which is still in process of development. We believe in the future of the gas industry, gas for fuel, cooking, house heating, water heating and gas for convenience.

There are at present great projects under way for the extension of gas mains from natural fields in various parts of the country. A great many of these have been completed, carrying natural gas to new communities that have never before had this service or convenience.

Not only do you have an opportunity of merchandising water heaters, which seems to be the natural line for the master plumber to sell, but you also have opportunities in gas ranges, radiant heaters, gas circulating heaters, refrigerators, incinerators, and so forth. The figures which I have quoted will give you some idea of the tremendous number of gas ranges that have been sold, and you have practically the same opportunity in merchandising other gas appliances such as have been mentioned. Let us take some of these appliances and see how they fit into our scheme of merchandising.

Gas ranges help to beautify and modernize the kitchen. The housewife spends less time in the kitchen. She can do better cooking with less effort. The new method of heat control with insulated ovens makes the preparation of the meal almost automatic.

Radiant heaters give us clean, healthful heat. The rays thrown off by these heaters contain some of the properties of sunlight, and they add to the beauty of the room in which they are located. Being made up in various ornamental designs, they can be made to harmonize with most any style of interior decoration. Incinerators conveniently placed give us the most modern method of garbage disposal.

Water heaters, and specially the automatic storage heaters, offer one of the finest avenues for merchandising that has been opened to the master plumber; in the first place he is thoroughly familiar with their installation and operation. When any of us become thoroughly conversant with the functions of an appliance we wish to sell, we believe the appliance will make good for our customers, and therefore the selling becomes easy.

During the years that you have been engaged in the plumbing business you have had an opportunity to survey conditions in the homes where you have performed some service. You know from past experience to what extent these homes have been modernized, and if you have kept any record of these conditions, you are now in position to analyze your field of prospects for gas appliances. There is one thing certain in this modern age of business; you must be awake to your opportunities for merchandising modern gas appliances, otherwise someone else will cash in on this business which should be yours.

As to the methods which you may employ to secure business from your vast field, you have a number of different ways to stimulate this business.

It can be done by the proper kind of advertising in your local daily papers. This can be supplemented by sending out attractive folders and letters to a mailing list of selected prospects.

You may employ special salesmen who can make a house-to-house canvas with the idea of interesting your prospects in the appliances you have for sale.

You have journeymen plumbers who are continually going into the homes of customers, and if you will insist that they make a report to you on the conditions of the

* Excerpts from an address by Mr. Gebhart, who is sales manager of Hotstream Heater Co., Cleveland, Ohio, before the recent convention of the Ohio State Association of Master Plumbers.

M. I. F. COPPER · TUBE · FITTINGS

STUDY THE DOUBLE 45° SEATS

. . SIMPLIFIES THE MODERN MODE OF PLUMBING—

M.I.F. Copper Tube Fittings reduce copper tube plumbing to profitable simplicity. They contribute every element necessary for . . . speed of installation . . . neatness of appearance . . . and above all . . . quality of the finished job high above the ordinary.

And the secret of their tightness and simplicity isn't really a secret at all. The double 45° seats do the trick. They offer point to point contact that cannot help but be TIGHT every time.

That's why these fittings are leakproof, shockproof and pullproof. That's why they simplify the modern mode of plumbing.

Ask your jobber to supply you.

MALLEABLE IRON FITTINGS CO.
BRANFORD CONN.

M|F

homes as they find them, you will get a great number of leads which can be followed up systematically. Your journeyman should be your best salesman.

We believe that a showroom is one of the most important factors in bringing your merchandise before the public. In arranging your window display, it should be done so as to make the particular appliance which you are featuring attractive, so that not only will the public stop and look at your window, but they will have a desire to come in and inquire about the appliance which is displayed. The windows should be well lighted, so that the light shines on the merchandise on display and not in the eyes of the passing public.

At the present time, manufacturers of gas appliances are prepared to furnish you with attractive literature and window display set-ups, electric window signs, newspaper mats, etc. With these you can display your products so as to easily attract your prospective customer. They can also give you sales information which will be of great help to you after you have been successful in getting the prospect into the store.

The selection of the proper appliance is important. No matter what the appliance may be, you should select it after thorough investigation and careful thought. In making your selections, and especially automatic storage heaters (because of their continuous operation), thought should be given to the service which it will ultimately render to your customer, and when we speak of service to the customer, we not only mean the service which they will expect this year, but the service they have the right to expect four or five years from now. If you select appliances which give only a minimum service, with rapid decrease in efficiency, you are not in any way building up a clientele of satisfied users, but if you select your appliances with the thought of continued and uninterrupted service to your customer, you will have established the basis for satisfied customers who, in turn, will automatically help to build your business.

To go still further with this idea of your selection of proper appliances, to show they must have an appeal to the buying public, we have data furnished by a manufacturer of gas ranges, who asked three questions of 2,000 women who had already purchased his gas range.

The first one was, "What caused you to investigate our range?" The second question was, "What is there about our range that caused you to decide to own this range instead of other ranges which you inspected and considered?" And the third one, "Now that you have used our range, what would you tell a friend that you liked best about it?"

We find by analyzing the answers, as they were given, the things that caused the selection were, primarily, beauty, or, in other words, the style and particular character of the range, and closely following that was the service rendered by the appliance, which, to the women's way of thinking, was baking, and the fact that the baking feature made such a pronounced hit was due to the proper heat control. Another important item was ease in keeping the appliance clean and attractive.

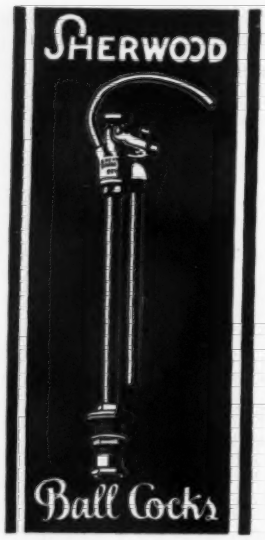
Remember, when a customer purchases an automatic storage heater from you he does so because he has confidence in you and in the appliance you sell. It was your sales effort and recommendation that caused him to buy. Be sure you back this up to the limit.

1855 - SEVENTY-FIFTH ANNIVERSARY - 1930

IT IS TO HELP YOU BY PLACING AT YOUR DISPOSAL COMPLETE EXHIBITS TO AMPLIFY YOUR OWN DISPLAYS, THAT CRANE CO. MAINTAINS ITS OWN EXHIBIT ROOMS

CRANE

YOU WILL FIND THESE EXHIBITS OF GREAT AID IN ASSISTING YOU TO VISUALIZE FOR YOUR PROSPECT THE INSTALLATION YOU ARE TRYING TO SELL HIM



What's the Reason for Sherwood Success?

Back of the success of any commodity is always a story of service and satisfaction.

When Sherwood started to build ball cocks, it was with the knowledge that many ball cocks which the plumber was asked to buy were not of the kind that could ever build a reputation for service or satisfaction.

Sherwood determined to eliminate leaks and whistling and gurgling from its ball cock. It determined to make it one that would close against any city water pressure. And Sherwood determined to build its ball cock at a price that would put it within the reach of every installation, no matter how modest.

Sherwood's success is explained by the fact that it has unfailingly lived up to its promise to provide a good ball cock.

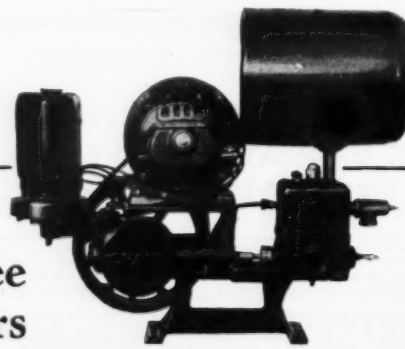
Plumbers everywhere have come to know Sherwood for a ball cock of highest quality. They demand it for all of their work.

SHERWOOD BRASS WORKS

Jefferson and Mt. Elliott Aves. DETROIT, MICH.

REPRESENTATIVES

J. A. Riordan Co. (Inc.), 1600 E. 7th St., Los Angeles; 303 Colman Bldg., Seattle
E. S. Thompson, 2401 Chestnut St., Philadelphia
Fred G. Hoffman, 831 Edgewood Ave., Trenton, N. J.
Fred S. Wrigley, Plymouth Bldg., Minneapolis



In three years a million sales . . .

By 1933, one million more farms will be served by electricity. One million extra homes will be ready for plumbing installations. The contractors that will get this business are those foresighted enough to start *now*. To make business contacts and build good-will among these farmers.

This can be done by installing the first unit . . . a reliable pump. For such a sale the Crane pump No. 252 is ideal. It is as dependable as Crane Co., unusually large in capacity, 250 gallons an hour; and considering its value, low in price . . . only $80.

Look at it as you will, you could have no better entering wedge in the great market, now opening, than this unit.

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVENUE, CHICAGO
NEW YORK OFFICES: 23 W. 44TH STREET
Branches and Sales Offices in One Hundred and Ninety-four Cities

1855 · SEVENTY-FIFTH ANNIVERSARY · 1930

Personal Mention

ALAN M. SCAIFE has recently been elected president of Wm. B. Scaife & Sons Co., Pittsburgh, Pa. He has been connected with the company for the past ten years and succeeds his father, the late James Verner Scaife, as president of the company. JAMES VERNER SCAIFE, JR., has been elected vice president, filling the vacancy caused by the election of his brother to the presidency.

GERMER PETESCH has been appointed assistant general sales manager of the Stockham Pipe & Fittings Co., Birmingham, Ala., and will maintain headquarters at Birmingham. Mr. Petesch has had a long association with the manufacturing end of the business and for several years was manager of the company's Chicago office.

Herbert F. Glass

HERBERT F. GLASS has been appointed manager of the pump and water softener division of Trupar Mfg. Co., Dayton, Ohio. Mr. Glass is well known to the trade, having formerly been sales manager of the water pump division of The Dayton Pump & Mfg. Co., Dayton, Ohio, and sales manager of the Monarch Engineering Co., also of Dayton. He has been identified with the pump industry for the past twenty years.

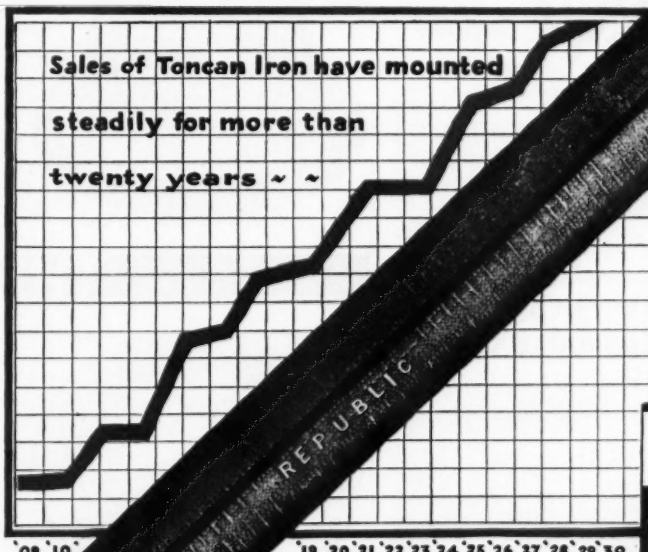
C. A. WILL, formerly with the American Radiator & Standard Sanitary Corp., has been appointed Indiana sales manager for the Milwaukee Valve Co., Milwaukee, Wis. Mr. Will has his headquarters at 3850 Cornelius avenue, Indianapolis, Ind.

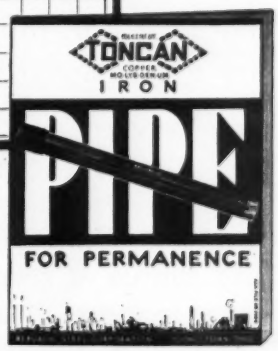
E. W. SANBORN, well known for many years as a manufacturers' agent in this industry, has re-entered the plumbing and heating business after two years in the water cooler field. He has recently moved from his former offices in the Straus building, Chicago, to new, commodious quarters in the American Bankers and Insurance building, 45 East Ohio street, Chicago. In the same suite—1124, 1125 and 1126—are the offices of United States Sanitary Mfg. Company, under the management of HAROLD A. CROSS, and the Shaw-Perkins Mfg. Company, under the management of A. H. JOLLIFFE.

W. L. BELKNAP, president of Belknap Mfg. Co., Bridgeport, Conn., in recounting, recently, for the "Bridgeport Life" his experiences as an acrobat, recalled that in 1889 he made his debut in the "big top" at the opening of the Barnum and Bailey circus in the old Madison Square Garden, New York City. After having been with Delavan's show as one of the La Vina Brothers for several years, Mr. Belknap formed a partnership with Herbert Buckley who, like himself, worked for his father, Charles Belknap, the founder of the company. Later Mr. Belknap and Mr. Buckley, who were both slack wire performers, took in Clarence King, forming the Lavinias Clover Leaf Three, accomplishing many

Back of *EVERY* length of

REG. U.S. PAT. OFF.
TONCAN
COPPER
MO·LYB·DEN·UM
IRON PIPE





What is any sales chart but a record of user satisfaction?

Sales of Toncan Iron have mounted steadily for more than twenty years. Hundreds of thousands of tons have been placed in service. Figures, therefore, substantiate this statement—Toncan is time-tested iron.

Toncan Copper Molybdenum Iron Pipe makes its best friends on tough jobs. Since it is an alloy iron it is better able to resist corrosion. Due to its unique physical properties, it threads cleanly and can be worked easily. Its use is an economy because it gives lasting satisfaction in services where ordinary ferrous pipe just doesn't stand a chance.

Somewhere, sooner or later, you, too, will find a place where Toncan Iron Pipe will save you money. "Pipe for Permanence," a copy of which will be sent on request, outlines specific cases where Toncan is giving excellent service in plumbing and heating lines, water and gas lines in corrosive soil, steam lines, process liquor lines, and in many places where unusually severe corrosive conditions are encountered, as in mines, smelters, refineries and oil well service.

As protection to you we mark it BLUE

REPUBLIC STEEL CORPORATION · · YOUNGSTOWN, OHIO

BIRMINGHAM BOSTON BUFFALO CHICAGO CINCINNATI CLEVELAND DALLAS DENVER DETROIT
EL PASO LOS ANGELES NEW YORK PHILADELPHIA PITTSBURGH SAN FRANCISCO SEATTLE ST. LOUIS

PERFECTION FLOOR AND CEILING PLATES

Whatever the job—in fact for *every* known requirement, there is a Perfection Floor and Ceiling Plate of the proper type made to accomplish it.

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Ask your jobber to fill your order

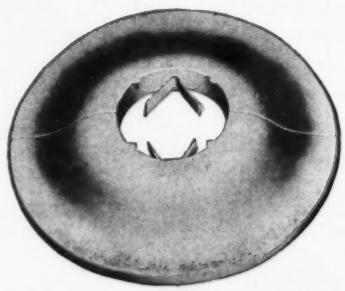
THE No. 6

This is a split type plate designed to fit over a riser or sleeve extending ¾ in. to 1 in. above floor or below ceiling. Made of Cast Iron or Brass, sizes ½ in. to 4 in.

THE No. 6A

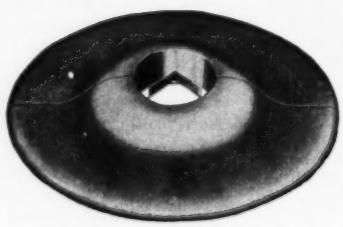
To cover pipe sleeves that protrude 1½ in above floor. Furnished with set screw for ceiling installation when specified. Made in Cast Iron and Brass, all sizes from ¼ in. to 5 in.

THE No. 7



Made of Cast Iron or Brass with flange 1½ in. wide. For use where mistake has been made in putting larger hole through the floor than necessary. Steel springs hold plate securely to pipe, all sizes from ½ in. to 4 in.

THE No. 9



For the same use and purpose as No. 7 with the exception that the No. 9 has a 2-in. flange. It is also held firmly to the pipe by means of springs, all sizes from ½ in. to 4 in.

The BEATON & CADWELL MFG. CO.

Established 1894

NEW BRITAIN, CONN.

astounding acrobatic feats. A dislocated shoulder, the result of a double somersault dive from a faulty springboard over a string of elephants onto a mattress, was the most serious accident suffered by Mr. Belknap, who a short time later, having reached the heights of stardom, retired to become identified with the company which he now heads.

W. F. Weber

WILLIAM F. WEBER, for a number of years active in the affairs of the National Association of Plumbing and Heating Salesmen as well as the New York Chapter and president emeritus of the former body, has joined the organization of the Pittsburg Water Heater Sales Co., Brooklyn, N. Y. Mr. Weber is working among plumbing and heating contractors, architects, builders and engineers.

JAMES EDMUND BOYACK has been made director of the publicity department of the American Radiator Co. Mr. Boyack's office is at 37 West 39th street, New York City.

Convention Dates

May 19 and 20, 1930—ALABAMA—The annual convention of the Alabama Master Plumbers Association, to be held at Birmingham, with headquarters at the Bankhead-Leland hotel.

May 19-20, 1930—TENNESSEE—The annual convention of the Associated Master Plumbers of Tennessee, to be held at Chattanooga, with headquarters at the Hotel Patten.

May 19, 20 and 21, 1930—PENNSYLVANIA—The annual convention of the Pennsylvania Master Plumbers' Association, to be held at the Bellevue-Stratford hotel, Philadelphia.

May 23 and 24, 1930—WASHINGTON—The annual convention of the Washington State Master Plumbers' Association, to be held at Seattle.

May 26, 27 and 28, 1930—KENTUCKY—The annual convention of the Kentucky State Association of Master Plumbers to be held at Crab Orchard, with headquarters at the Crab Orchard Spring hotel.

May 28 and 29, 1930—NORTH CAROLINA—The twentieth annual convention of the North Carolina Association of Plumbing and Heating Contractors, to be held at Concord.

June 2, 3 and 4, 1930—VIRGINIA—The annual convention of the Virginia Associated Plumbing and Heating Contractors, to be held at the Warwick hotel, Newport News.

June 16-19, 1930—H. P. C. N. A.—The forty-first convention of the Heating and Piping Contractors National Association, to be held at the New Yorker hotel, New York City.

June 24, 25 and 26, 1930—N. A. M. P.—The forty-eighth annual convention of the National Association of Master Plumbers, at Boston, Mass. Sessions at Grand Hall of Mechanics Building. Headquarters at Statler hotel.

June 24, 25, 26 and 27, 1930—A. S. H. V. E.—The semi-annual meeting of the American Society of Heating and Ventilating Engineers to be held at Minneapolis, Minn., with headquarters at the Curtis hotel.

August 12, 13, 14 and 15, 1930—A. S. S. E.—The annual convention of the American Society of Sanitary Engineering, to be held at Winnipeg, Canada.

COMING TRADE EVENTS

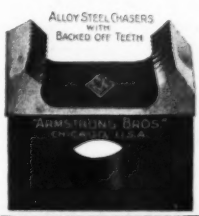
May 26, 1930—The second golf tournament of the Triangle Club of Pittsburgh, Pa., to be held at South Hills Country Club.

June 9, 1930—The third golf tournament of the Triangle Club of Pittsburgh, Pa., to be held at Youghiogheny Country Club.

June 12, 1930—The second golf tournament of the Plumbing

Cost more to make but cost you no more than ordinary dies.

ARMSTRONG BROS. Adjustable Dies cost more to *make*, first, because they are of Special Vanadium Tool Steel, and second, because chasers are "backed-off"—have clearance from the cutting points. This requires an extra and expensive manufacturing operation which is more than justified by its results, namely: A cutter form that eliminates friction ("drag") and gives dies that start easily, cut fast and clean, and back off pipe smoothly without jamming or tearing. Other features of these dies include: Correct Cutting and Throat Angles and Ample Chip Clearance. They cost no more than ordinary dies and are identified by the Arm-and-Hammer Trade Mark.



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for Hot Water Heating Systems
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—Eliminates expansion tank and fittings (with its danger of freezing and overflowing).
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—Saves your time and your customers' money.
—Increases your profits and builds good will.
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Supplied in capacities up to 1200 g.p.m., heads up to 250 ft. Write for Bulletin 52.
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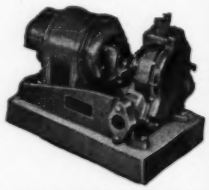
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not think of missing your daily paper, yet it does not begin to help you as your business paper, so why not spend a minute to send in your subscription. You will soon realize the tremendous help you have been doing without.

Contractors' Association of Chicago, to be held at Pickwick Golf Club, Glenview, Ill.

June 12, 1930—Western Trade Golf Association. Regular tournament at Medinah Country Club.

June 23-27, 1930—Exposition in connection with the annual convention of the National Association of Master Plumbers in the Mechanics Building, Boston, Mass.

June 30, 1930—The fourth golf tournament of the Triangle Club of Pittsburgh, Pa., to be held at Highland Country Club.

July 10, 1930—Western Trade Golf Association. Regular tournament at Glen Flora Country Club, Waukegan, Ill.

July 17, 1930—The third golf tournament of the Plumbing Contractors' Association of Chicago, to be held at Cog-Hill Golf Club.

July 21, 1930—The fifth golf tournament of the Triangle Club of Pittsburgh, Pa., to be held at Wildwood Country Club.

August 5, 1930—Western Trade Golf Association. Regular tournament at Olympia Fields Country Club.

August 18, 1930—The sixth golf tournament of the Triangle Club of Pittsburgh, Pa., to be held at Stanton Heights Country Club.

August 21, 1930—The fourth golf tournament of the Plumbing Contractors' Association of Chicago, to be held at Big Oaks Golf Club.

September 5, 1930—Western Trade Golf Association. Regular tournament at Glen Oak Country Club.

September 15, 1930—The seventh golf tournament of the Triangle Club of Pittsburgh, Pa., to be held at Shannopin Country Club.

September 18, 1930—The fifth golf tournament of the Plumbing Contractors' Association of Chicago, to be held at Oak Hills Golf Club, Palos Park, Ill.

October 3, 1930—Western Trade Golf Association. Final tournament of year at Calumet Country Club.

October 9, 1930—The sixth golf tournament of the Plumbing Contractors' Association of Chicago, to be held at Tam O'Shanter Golf Club.

October 14, 1930—The eighth golf tournament of the Triangle Club of Pittsburgh, Pa., to be held at Edgewood Country Club.

◆

San Francisco Trade School Starts Advanced Class

For the benefit of those who have had journeyman experience or its equivalent, the plumbers' trade school conducted by the industrial association of San Francisco, Calif., has recently inaugurated an advanced class. This class also includes those who wish to supplement their general experience by studies along some specialized line.

At present, there are fourteen members in this class. Meeting for two hours every Monday night, it is estimated that from four to twelve months will be required for this extra instruction, depending upon the number of subjects taken.

The school is under the direct supervision of J. C. Staudinger, a man of wide experience in the craft and one who has made an intensive study of every branch of the work, including that of administration. The apprenticeship committee of the master plumbers' association, headed by Joseph Rohr, takes a keen interest in the affairs of the school and meets monthly with the staff of the industrial association relative to apprenticeship matters.

◆

Omaha Association Elects Officers

The Master Plumbers' Association of Omaha, Nebr., has elected as its officers for 1930: Ray W. Bixby, president; Wray M. Scott, vice president; E. H. Brown, secretary; and Leo Baroch, treasurer.

THE TRADE NEWS
News of Plumbing and Heating Contractors

President Drake Requests Names of Delegates to National Convention

George H. Drake of Buffalo, N. Y., president of the National Association of Master Plumbers, in a letter to the presidents of the state associations, requests that all credentials containing the names of delegates to the National convention be returned to the National office prior to the coming convention, which is to be held at Boston, June 24-26.

President Drake points out that the National by-laws require the credentials committee to report at the first session of the convention and that it is impossible for the committee to do this unless the various associations forward their credentials prior to the convention.

In the same letter President Drake explains that any proposed changes to the National by-laws must be submitted in writing to the National secretary at least thirty days before the convention, and must first have the approval of the board of directors and the president of a state association. He also calls attention to the fact that representation at the National convention shall only be had from those state or local associations which have paid in full their national dues. President Drake's letter reads in part:

"I am offering these suggestions not by way of criticism of what may have been done in the past, but in an earnest endeavor as presiding officer to conduct the 1930 Boston convention in as businesslike and harmonious a manner as possible, and this can only be done by the assistance and co-operation which I know I can count on receiving from your state and local officers as well as the delegates attending the National convention.

"From all indications this promises to be one of the largest and finest gatherings ever held by our association and I anticipate the pleasure of seeing you there, accompanied by a representative delegation from your state."

◆

Pennsylvania Convention Will Stress Education

With education, business building and co-operation the keynotes of the 36th annual convention of the Pennsylvania State Association of Master Plumbers, which is to be held May 20 and 21 at the Bellevue-Stratford hotel, Philadelphia, the committee in charge has arranged for an exhibit of plumbing and heating materials on the top floor of the hotel, both that and the roof garden being reserved for the occasion. Several hundred thousand tickets to the exhibit are being distributed free to the public and a large response is expected. A souvenir program is on the press and will be mailed to master

Wahoo, Nebr., Contractor Has Good Display Room

THE photograph at the left shows a section of the display room maintained by Alf. E. Olson, plumbing and heating contractor of Wahoo, Nebr. The large front windows afford the passer-by an opportunity to scrutinize the assortment of plumbing fixtures, arranged in an attractive way on the display room floor. A heating boiler and a radiator are set in the front of the room.

plumbers throughout the state in an effort to make this the largest and best meeting in the history of the organization.

◆

A. S. H. V. E. Program Is Announced

Arrangements are fast approaching completion for the semi-annual meeting of the American Society of Heating and Ventilating Engineers, to be held at Minneapolis, Minn., June 24-27. Headquarters for the meeting will be at the Curtis hotel. A splendid program is being prepared, as the Minnesota Chapter members have unsurpassed natural beauties to show their guests and unlimited facilities for recreation.

Minneapolis is a large manufacturing city and is the world's chief flour producer. It maintains the leadership in the production on linseed products and has many manufacturing plants making equipment used by the heating and ventilating profession.

In the customary manner for summer meetings, one session a day will be held. The way to Minneapolis is clearly marked and those who travel by train will find reduced rates attractive and for those who decide to motor, good roads converge from all points.

The following preliminary program has been announced:

MONDAY

a. m.—Headquarters, Reception Committee—LaSalle Hotel, Chicago, Illinois.
p. m.—Reception of Guests by Committee—Curtis Hotel, Minneapolis, Minn.

TUESDAY

8:30 a. m.—Registration—Lobby floor, Curtis hotel.
9:30-12:30 a. m.—Technical Session—Ball Room, Curtis Hotel.
11:30 a. m.—Picnic Luncheon—Lake Harriet.
2:00 p. m.—Sightseeing and Inspection (Twin Cities and U. of Minn., Engr. Lab., Plant of Minneapolis-Honeywell Regulator Co.).
7:00 p. m.—Council Dinner and Meeting.
8:30 p. m.—Informal Reception and Dance, Curtis Hotel Ball Room.

WEDNESDAY

9:30-12:30 a. m.—Technical Session—Ball Room, Curtis Hotel.
10:30 a. m.—Ladies' Shopping Tour.
2:00 p. m.—Golf Tournament—Minneapolis Automobile Club. (Research Cup).
Ladies' Golf Match—Automobile Club.
Bridge and Tea for Ladies—Automobile Club.
7:00 p. m.—Informal Dinner for Members and Ladies.

THURSDAY

9:30-12:30 a. m.—Technical Session—Ball Room, Curtis Hotel.
1:30 p. m.—Garden Party for Ladies.
2:00 p. m.—Golf Meet (Kicker's Handicap), Thorp Country Club.
7:00 p. m.—Semi-annual Banquet and Dance, Curtis Hotel Ball Room.

FRIDAY

9:30-12:30 a. m.—Technical Session.
12:30 a. m.—Hostess Luncheon for Ladies.

The committees for the semi-annual meeting are as follows:

General Arrangements Committee: A. Buenger, chairman, H. E. Gerrish, H. J. Sperzel, A. J. Huch, W. F. Uhl, F. B. Rowley and A. M. Wagner.

Reception and Registration Committee: F. B. Rowley, chairman, N. D. Adams, C. E. Hasey, W. B. Clarkson, L. C. Hanson, S. A. Challman, E. F. Jones, G. A. Dahlstrom, J. V. Martenis, C. Foster, A. H. Probst, E. B. Gordon, Jr., A. L. Sanford and M. S. Wunderlich.

Hotel and Transportation Committee: W. F. Uhl, chairman, J. H. Brown, H. G. Helstrom, E. J. Burns, W. N. Parks, M. H. Bjerken and F. C. Winterer.

Entertainment Committee: H. E. Gerrish, chairman, H. H. Bradford, A. J. Huch, C. G. Burritt and R. B. Mosher.

Finance Committee: A. M. Wagner, chairman, E. F. Jones, G. C. Morgan and R. W. Otto.

Publicity Committee: A. J. Huch, chairman, C. E. Gausman, Fred Shernbeck, C. E. Hill and E. J. Uhl.

Golf Committee: H. J. Sperzel, chairman, D. M. Forfar, J. B. Harris and D. C. Ruff.

Ladies and Hostesses Committee: Mrs. F. B. Rowley, chairman.

◆

Utah Association Governors Are Announced

Ambrose H. Higham of Salt Lake City, president of the Utah State Association of Sanitary and Heating Engineers, has announced the following appointments to the state board of governors: E. O. Moe, Provo; Val Palmer, Logan; Leo S. Holbrook, Bountiful; Joseph F. Carthey and A. E. Hurd, Salt Lake City. The president is an ex-officio member of the board.

◆

Maryland Association Elects Officers

At the recent meeting of the Association of Master Plumbers of the State of Maryland, Inc., the following were elected as officers for the ensuing year:

August Maltham, president; William H. Williams, first vice president; Gustav Wirth, second vice president; Frank Breyer, treasurer; Thomas J. Thaler, recording secretary; John W. Clark, executive secretary.

The following committees were appointed by the president:

Legislative—Frank Knell, chairman; Joseph Gessler, Charles Wachsmuth, George A. Barnhardt, William Hellbach, Gustav Wirth, August V. Eidman, William F. Myers, W. A. Imbach and George Hensler.

Investigating—Samuel E. Houck, chairman; Francis C. Dorsey, William F. Mylander, Gustav Wirth and John W. Monosmith.

Finance—William F. Mylander, chairman; August V. Eidman and Francis C. Dorsey.

Sanitary—William H. Williams, chairman; Thomas J. Thaler, William F. Mylander, Samuel E. Houck, William F. Myers, George Schaffer and August V. Eidman.

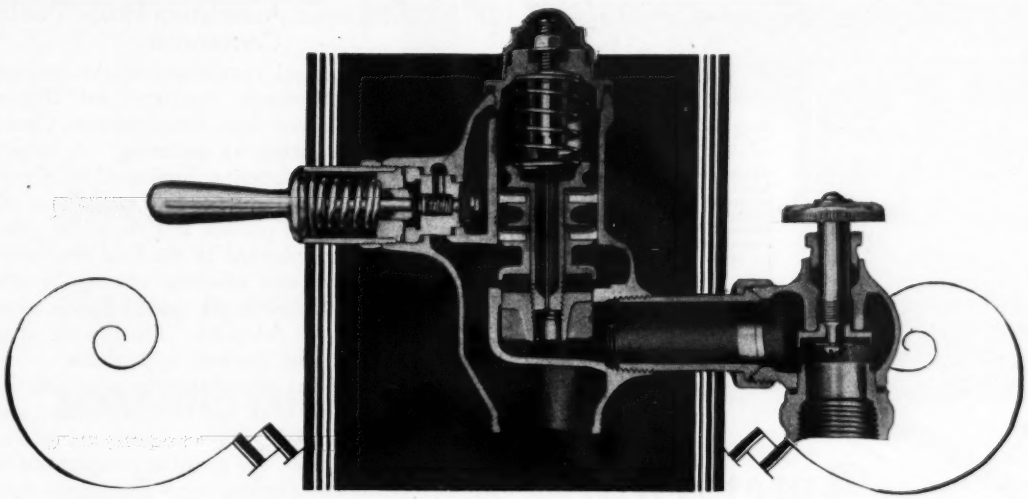
Membership—Gustav Wirth, chairman; F. O. Filson, Jr., Philip Goldsmith, Charles R. Neeb, John M. Widman, S. B. Davis, Charles W. Pearce, John Frederick, Charles McKenna, R. Goldman, Earle Franke, Theodore Bunnecke, Milton Henkle, F. L. Hutchins and P. R. Buchwald.

Vocational and Educational—William F. Mylander, chairman; Samuel E. Houck and Francis C. Dorsey.

Conference—Francis C. Dorsey, chairman; August V. Eidman, Frank J. Knell, Samuel E. Houck, William F. Mylander, W. H. Williams and Gustav Wirth.

Entertainment—Gustav Wirth, chairman; George R. Hardesty, Theodore Bunnecke, Samuel E. Houck and Charles Wachsmuth.

An active campaign is to be launched for an increase in membership by the membership committee, and to make the meetings more attractive moving pictures, entertainment, and prominent speakers will be offered at each assembly.



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SCOVILL FLUSH VALVE

Of plunger type construction, the Scovill valve has a by-pass down the center. A phosphor bronze rod suspended from the valve cap extends through the by-pass and cleanses it each time the valve is operated. This construction eliminates the clogging which requires servicing on some other types of valves.

Long bearing surfaces on the sides of the plunger itself cause it to ease gently up and down the cylinder walls; working ***against*** *the water pressure, smooth shut off is assured and water hammer, another reason for servicing is practically eliminated. The water inlet is definitely sealed as the plunger eases itself down to a firm, even seat.*

The flush of the valve can be regulated from the ***outside****, a great assistance in equipping odd size bowls and urinals.*

Sometimes you may think you're doing your customers a good service by economizing on equipment—by saving them money.

And oftentimes subsequent calls to service this equipment may cost you extra time that wipes out your profit on the job.

Trouble-proof, perfect functioning, long wearing equipment is sure to save you this time—sure to give your customers better dollars and cents value on their investments.

Include Scovill Flush Valves in this category. Study the reasons listed at the left to show you why and how they are made trouble proof.

On your next flush valve job, if you're held to a price, consider and sell your customer on the positive fact that long wearing, perfect functioning Scovill Flush Valves are cheapest in the end!

Send for catalog and price list of various models.

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In 1910, American Brass Goods began to earn the reputation, "the built for the future line of plumbers' brass." The years since have but served to prove the reliability of anything that bears the American Sanitary Mfg. Co. name.

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Standard—Extra Heavy—Hydraulic
Oil Country

STOCKHAM PIPE & FITTINGS CO.
Birmingham, Ala.
Stocks in Boston, New York, Chicago, Houston, Los Angeles

Saskatchewan Association Holds Twelfth Convention

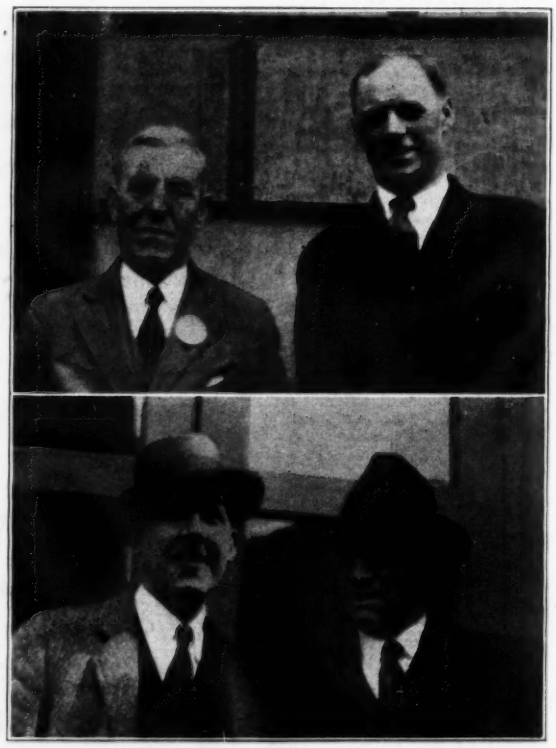
The twelfth annual convention of the Saskatchewan Association of Domestic, Sanitary and Heating Engineers, held at Moose Jaw, Saskatchewan, Canada, was in every way a satisfactory gathering. A large volume of business was transacted, a number of excellent speakers were on the program, a record attendance of members and visitors was present and the social side of the gathering was well planned by the local members.

The convention was officially opened by President James Brandon, while Mayor James Pascoe extended a civic welcome to the delegates. The balance of the first morning session was devoted to business.

The reports of the officers for the past year indicated that a great deal of work had been performed and much progress accomplished. Several matters of interest were outlined, among them, the growing co-operation between the three sister associations of Manitoba, Saskatchewan and Alberta. An interprovincial meeting, held at Regina, where delegates from each association were present, was discussed at length.

The licensing and examination of plumbers came in for discussion. It was the feeling of the meeting that a practical plumber should be specified in the provincial by-law as being qualified for the post of plumbing inspector, whereas the by-law at the present time calls for anyone satisfactory to the department of health.

The convention was addressed by a group of excellent speakers who covered a wide range of topics. The an-



Top picture: Andrew F. Curtin, Curtin Valve Co., and Neal Knudsen, past president, Maine State Master Plumbers' Association. Bottom picture: A. L. Gustafson, Holyoke Heater Co., and Daniel Hansen, Boston. Photos taken at the convention of the Massachusetts State Association of Master Plumbers

The widest range of distinctive colors, the most modern designs, a complete price range, the finest possible construction regardless of price, *and a simple time payment plan that makes it easy to do business*—these are the advantages of the plumbing contractor who sells "Standard" Plumbing Fixtures on the "Standard" Time Payment Plan. Complete details of this plan sent on request.

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Send at once the complete details of the "Standard" Time Payment Plan to

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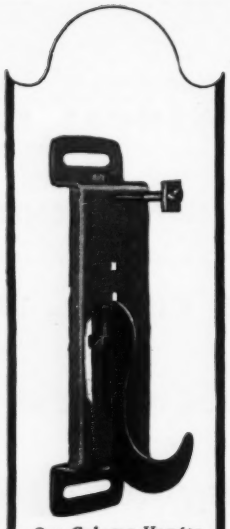
The cost is so small and the convenience so great that no building should be considered without complete Moore equipment.

Ask your jobber or write direct for details.



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ILLINOIS MALLEABLE IRON CO.
Chicago, Ill.

Manufacturers Full Line Iron Pipe Fittings

nual banquet was well attended and a group of clever entertainers kept the party lively.

Norman Roantree of Regina, was elected president for the ensuing year, while George Lythgoe was named vice president. James C. Stewart is secretary-treasurer of the association.

Committee appointments were as follows: Sanitation, George Baird, chairman; heating and ventilating, James Yates, chairman; legislative, Edward Paulin, chairman; apprenticeship, Harry Potts, chairman.

◆

Gas Appliances Discussed Before Western Trade Group

A large and interested attendance featured the April 17th meeting of the Plumbing and Heating Club of San Francisco and the Bay Cities, held at the Elks Club in San Francisco, when the gas appliance section presented a well diversified program.

Charles S. Aronson, president of the Pittsburg Water Heater Co., Pittsburgh, Pa., was the first speaker, pointing out in his opening remarks that the biggest single advance in the gas appliance field has taken place in the water heater division. Indicating the difficulties attending the old-time "Saturday night bath," Mr. Aronson brought down to date the history and development of the automatic water heater. "We would not have the beauty and utility of the modern bathroom," he went on, "were it not for the convenience of the water heater." Going into the subject of advertising and sales, Mr. Aronson concluded by making reference to natural gas, recently introduced to San Francisco. "Natural gas is an ideal fuel, and should help to sell more water heaters. This is a clean fuel; for that reason, appliances are kept clean."

Robert B. Lees of the Ruud Mfg. Co., Pittsburgh, Pa., spoke on "Selling the Water Heater." Some idea of the use to which this appliance is put in every day life was gained from Mr. Lees' remarks when he reported the result of a recent survey that indicated that the average San Francisco family of five turns the hot water faucet 155 times in 24 hours, for a wide variety of uses. Cold water, he said, is commonly used for only three purposes: drinking, tempering hot water, flushing toilets. The result of another survey, conducted in connection with sales promotion work, showed that in one of the older sections of the city only 15 per cent of the homes were served with water heaters, and 10 per cent were not even connected with gas mains. "This means," said Mr. Lees, "that at least 50 per cent of these homes are markets for heaters."

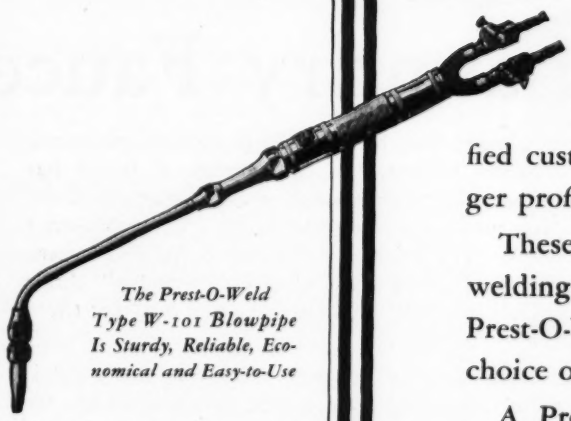
Harold Flyge, manager of the boiler division, Pittsburg Water Heater Co., gave an interesting talk on gas-fired steam and hot water heaters. "Natural gas is the red blood now being injected into the heating field," he said. "Big business realizes this fact, with the result that bankers and financiers of national reputation are backing the move to introduce it throughout the entire country."

Four new members were introduced: C. Y. Frazier of the American Rubber Co.; A. E. Somerton of Tay-Holbrook, Inc.; Frank M. Gabbert of the Standard Sanitary Mfg. Co.; and L. Hons of the Plant Rubber & Asbestos Co.

EQUIP FOR OXWELDING *with*

PREST-O-WELD

WELDING AND CUTTING APPARATUS



The Prest-O-Weld Type W-101 Blowpipe Is Sturdy, Reliable, Economical and Easy-to-Use

PLUMBING and heating contractors equipped to make oxwelded installations build good-will through better satisfied customers and, at the same time, make bigger profits on every job.

These contractors find that whatever their welding, cutting, and heating requirements are, Prest-O-Weld gives complete satisfaction. It is the choice of this progressive industry.

A Prest-O-Weld welding and cutting outfit often pays for itself in a few days' use through increased economy of time, material, and labor.

Sold by Jobbers Everywhere

OXWELD ACETYLENE COMPANY

Unit of Union Carbide UCC *and Carbon Corporation*

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IN CANADA: DOMINION OXYGEN CO., LTD., TORONTO

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Gentlemen: Please send me your booklet titled "Oxy-Acetylene Welding and Cutting."

Name .....

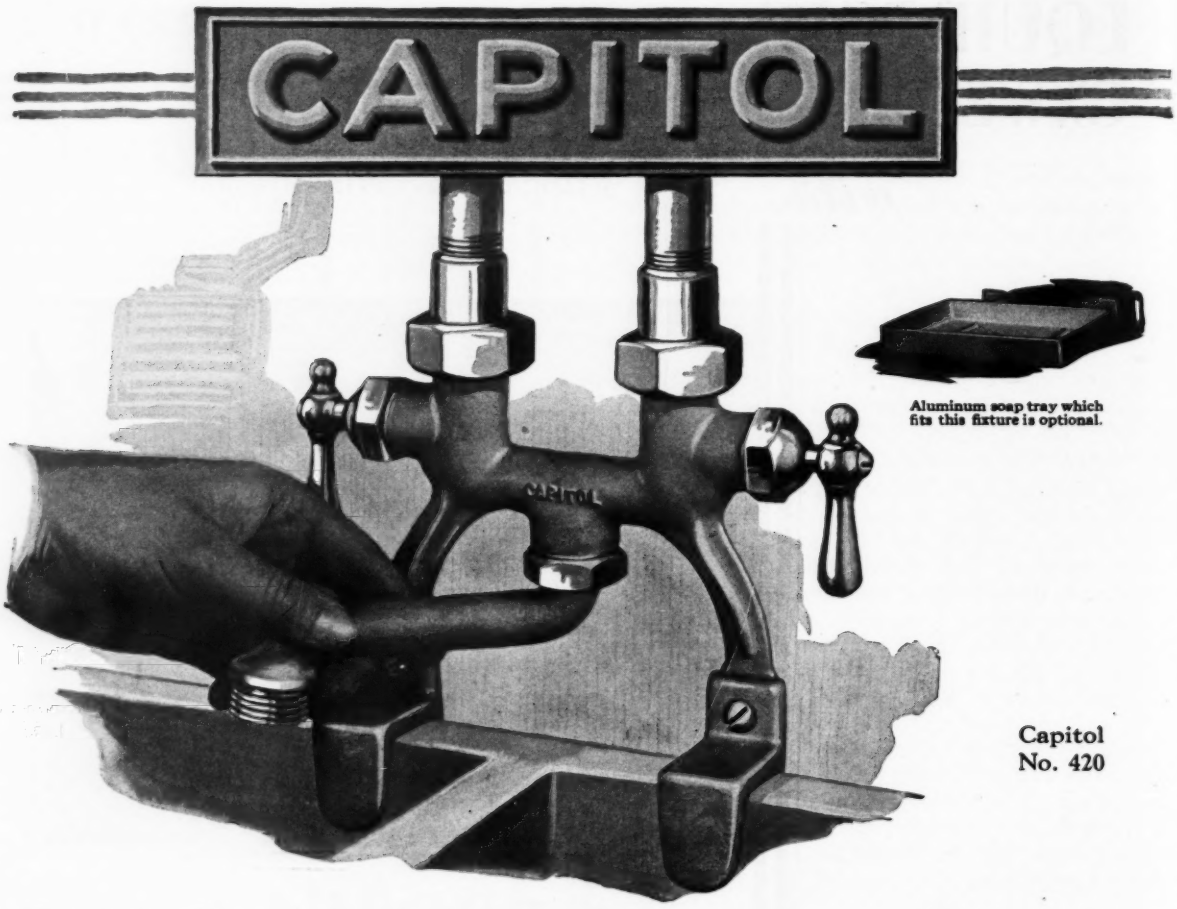
Company .....

Position .....

Street Address .....

City ..... *State* .....

D.E. 5-17-30



Aluminum soap tray which fits this fixture is optional.

Capitol
No. 420

Combination Laundry Faucet

Wholesalers:

Before placing another order for Combination Laundry Faucets be sure to ask for quotation on this Capitol No. 420—you'll find a pleasant surprise awaiting you.

Here's a faucet made by one of the pioneer manufacturers of combination fixtures, the construction of which has recently been modified so as to allow for adjustment at the point where tub clamp fastens to faucet. The tub clamps are reversible. The unions are of heavy ball plated pattern absolutely trouble proof. The spout is long and will throw water well out into tub. ***Also made extra long for three part tubs.***

The Capitol No. 420 is made entirely of brass and is rough nickel plated all over except hexagons which are machined and nickeled. An article which is finished a bit better than would seem necessary and

MORE ATTRACTIVELY PRICED THAN EVER!

Bohn Aluminum & Brass Corporation

CAPITOL BRASS DIVISION

MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

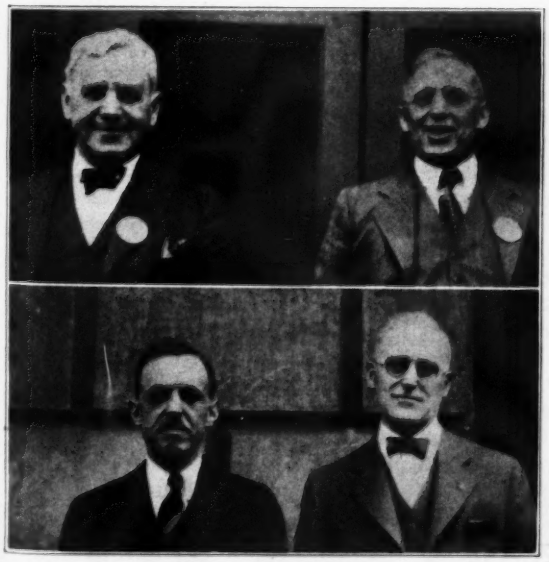
DETROIT~MICHIGAN

Massachusetts Convention Hears Business and Technical Talks

The Massachusetts State Association of Master Plumbers held its annual convention at the Statler hotel, in Boston, on April 22 and 23, the first part of the report on this meeting appearing in the May 3 issue of DOMESTIC ENGINEERING. The convention was very well attended, the members hearing in detail the plans for the forthcoming National convention, which is to be held at Boston in June, and also discussions on technical and business subjects. The following concludes the report:

Mr. Campbell, discussing merchandising and advertising, offered certain of his company's facts gathered through surveys and studies of selling developments in the drug, food products and hardware fields. To the question, What can be done to get some business with the volume of the highly competitive new building construction down, he replied: "Attack the remodeling market that is almost unlimited." In this connection he exhibited a chart showing the following: 12,000,000 obsolete homes; 16,000,000 of the 26,000,000 homes in the country that could be profitably remodeled; 16,000,000 homes not equipped with modern heating plants; 8,000,000 with obsolete bathrooms; 30,000,000 closet bowls in use in the United States, 25 per cent of which could be replaced through proper approach. As an illustration of what can be done along real merchandising lines, Mr. Campbell told of a Boston department store that sold 9,000 radios at $109 each in two weeks and added that that is the real competition. A survey in Framingham, Mass., he said, disclosed that there are hardly any bathrooms that were installed less than ten years ago.

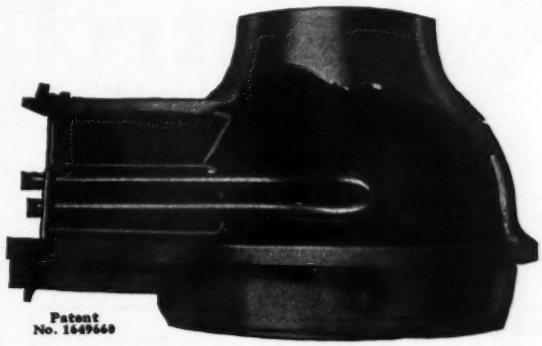
Mr. Tarr, following Mr. Ryan, said: "The committee was appointed last year and given instructions to do the best work possible in the interest of the association and the industry. This matter of standardizing copper hot



Top picture: Neilly Sullivan and Thomas Helme of Fall River. Bottom row: Elliott Tarr of Gloucester, and Alan Ham of W. B. Hubbard & Sons, Boston

The GLOBE Sizzler

THE NO-POCKET, ONE-PIECE FURNACE COIL



Patent No. 1649660

More Profits — More Sales

THE Globe Sizzler costs you less than home-made coils. Yet it is many times better and brings you much bigger profit. It is a good-will builder, too, because it gives longer, more satisfactory service.

The Sizzler is the only one-piece, no-pocket coil made. Circulation always in an upward or horizontal direction. Because it contains no pockets it can't clog or lime up. *Write today for full information.*

GLOBE MACHINERY & SUPPLY COMPANY
227 W. Court Ave., Des Moines, Iowa

The Globe Sizzler is made in different lengths to fit all makes of furnaces. It comes to you ready for installation, each coil packed in an individual carton.

STAR NACO

SELLING D POLICY

PROTECTS *the* LICENSED PLUMBER

STAR-NACO
A Quality Product

A boiler with which you can outsell the unlicensed plumber.

Write for literature giving us the name of your jobber—

D. D. WESSELS & SONS CO.
DETROIT, MICHIGAN

NATIONAL Control

of dampers, centered in METAPHRAM DAMPER REGULATORS provides constant, gradual movement of draft and check dampers to compensate for changing heat demands.

There is a METAPHRAM DAMPER REGULATOR for every domestic heating boiler.

Write for descriptive literature covering your control requirements

National Regulator Co., 2317 Knox Ave., Chicago, Ill.

Stop pipe thread leaks with SMOOTH-ON No. 1 in a SMOOTH-ON CLAMP

Sizes for 1-in. to 12-in. pipe.

QUICK, easy, cheap. Holds for the life of the line—any pressure, any temperature, iron, brass, or copper pipe. Get Smooth-On Clamps and Smooth-On No. 1 from nearest supply house or from us.

Write for the free Smooth-On Handbook.

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EXPAN-HUB SOIL PIPE

For years contractors have been bothered with the problem of expansion and contraction in the soil line. Expan-Hub completely solves it. For its specially designed gasket absorbs all such movements, keeping joints gas-tight.

Manufactured and sold by

ALABAMA PIPE COMPANY STRINGER BROS. CO., Inc.
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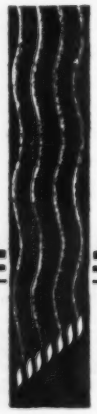


MORE HEAT AT HALF THE COST

—the result of burning No. 1 Buckwheat anthracite in a Spencer Gable-Grate Magazine Feed Heater.

Write for the Spencer catalog. It describes the Spencer Heaters that save money for your customers and make money for you.

SPENCER HEATER COMPANY
Williamsport, Pa.

SPENCER *Magazine Feed* **HEATERS** *for steam, vapor or hot water*

water tanks is very important and has a great bearing on the hot water portion of the plumbing business.

"Our notice was called to a meeting of the manufacturers of hot water tanks held in the Boston Consolidated Gas Company's office on February 21 under the direction of the Department of Commerce of Washington, Simplified Practice Division, with the object in view of standardizing copper hot water tanks. No plumbers were invited because it was a matter entirely devoted to the manufacturers of these tanks.

"It was our thought that if suggestions were wanted that the plumbers were the logical source from which to receive them because it is the plumber who buys and installs the tanks and furnishes hot water to the public.

"We therefore called a meeting of the tank manufacturers at the Engineers Club in Boston on December 19, 1929, and gave a dinner to eleven manufacturers at no cost to the association. This committee presented the plumbers' viewpoint to the manufacturers and as a result after discussion the manufacturers said that if the plumbers would submit recommendations for the number, the size, and the location for tappings in these tanks that they would do as we wanted in that respect.

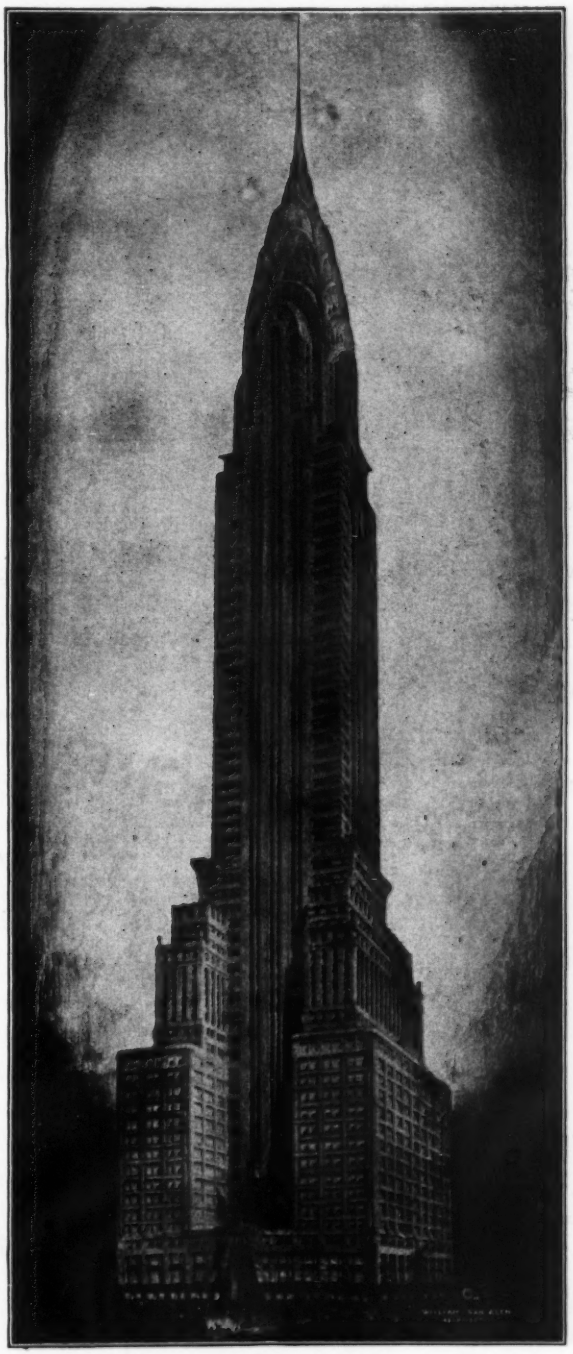
"Your committee got in touch with representative plumbers from Rhode Island, Connecticut, New Hampshire and Maine, and the following recommendations were submitted to the manufacturers at a meeting called by the Department of Commerce, Simplified Practice Division, held at the Boston Consolidated Gas Company's Building on February 21, 1930:

1. That the word "tank" be used instead of the word "boiler."
2. That capacities be as follows, 30, 40, 50, 60, 80, 100, 125, 150, 200.
3. That all tanks should be tapped I. P. S.
4. No couplings should be furnished.
5. That the number, the size and the location of tappings be as follows: In the 30 to 40 gallon capacities, two ¾ in. in the head, four tappings in the shell as follows: one ¾ in. four inches O. C. down from the edge of the top head, one ¾ in. four inches O. C. from the edge of the bottom head, one 1 in. twenty inches up from the edge of the bottom head, one ¾ in. twenty-six inches up from the edge of the bottom head, and one 1 in. in the center of the bottom head.
6. That the tanks be furnished without cold water tubes.
7. That the shell tappings be located as follows: The two ¾-in. which are four inches from the edge of the heads shall be on the right hand side.
8. That the 1 in. which is twenty inches from the head, and the ¾ in. which is twenty-six inches up from the head, be on the left side.
9. That tanks from 50 to 60 gallons have 1 in. tappings all around, located as described above.
10. That tanks from 80 to 100 gallons have 1¼ in. tappings all around.
11. That tanks from 125 to 150 gallons have 1½ in. tappings all around.
12. That tanks from 200 to 250 gallons have 2 in. tappings all around.
13. That tanks from 300 to 400 gallons have 2½ in. tappings all around.

Specify

WALWORTH
VALVES
FITTINGS
AND TOOLS
for

PLUMBING
AND
HEATING



● In the Chrysler Building Walworth furnished all the valves and fittings for the heating installation and also the fittings on the fire lines. ● In this age of standardization a complete line of products, like Walworth's, offers unequalled opportunity for the builder to turn over a building to its owner completely equipped with one make of valves and fittings on every piping system in the structure. ● For the modest residence or largest hotel, the most elaborate hospital or the towering skyscraper, there is a Walworth valve or fitting for every requirement of the piping system.

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General Sales Offices: 60 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa. and Attalla, Ala.
• DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD •

CHRYSLER BUILDING ● New York
Architect, William Van Alen Consulting Engineer, Louis T. M. Ralston
General Contractor, Fred T. Ley & Co., Inc.
Plumbing Cont., John Weil Co. Heating Cont., Baker Smith Co.

WALWORTH
VALVES - FITTINGS - AND TOOLS

"WERE YOU RIGHT? I'LL SAY YOU WERE!"

"Say . . . the woods are full of Speed Heater business!" . . .

That's what contractors report to our Sales Cooperators. Men who were "from Missouri" become Speed Heater boosters . . . once they try their hand at getting Speed Heater business.

Speed Heaters are "made-to-order" for contractors! A cinch to install . . . time and money saved on every job . . . a fat profit margin on the equipment itself.

And look at the market! Stores, garages, auditoriums, theatres, showrooms, factories, workshops, restaurants . . . just a few of the dozens of Speed Heater prospects.

We can't tell you a tenth of the interesting Speed Heater story in this advertisement. Why not get *all* of it . . . by mailing the coupon? It will pay you to do this . . . now . . . if you are interested in bigger profits!

THE PRICE IS WAY DOWN

COUPON

B. F. STURTEVANT CO.
Hyde Park, Boston, Mass.

Kindly mail me "Tips on Heater Selling" and "Speed Heater Data".

☐ I'd like to see a Sales Cooperator when he's in the district.

Company .....

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Sturtevant (REG. U. S. PAT. OFF.) **SPEED HEATERS**

14. That tanks of 500 gallon capacity have 3 in. tappings.

15. That tanks from 80 to 200 gallons have three tappings in the top head and a hand hole.

16. That tanks from 300 to 500 gallons have manholes.

"We believe that this is an important matter and that the Association should take some action at the Convention and we therefore have presented a resolution to the Resolution Committee which we hope will be presented here for consideration.

"We have had considerable correspondence from the Department of Commerce and from other associations and individuals in connection with this work and would like to add that the committee has met several times and has spent a good deal of time making sketches, answering correspondence, etc., which was necessary in connection with this work."

A resolution, which carried, requested the national association to approve the recommendations.

During a general discussion several subjects of importance were dealt with by the delegates. M. F. McGourty of Newton read a law from the plumbing rules recently enacted in Needham, which does not clearly require that a master plumber has to do plumbing work, allowing journeymen to take out permits, and requested information as to how the law could be changed. Several suggestions were offered but Secretary Wordell pointed out that the state law does not specifically state that permits are to be granted to master plumbers only, therefore local ordinances cannot include that they shall.

Top row: Alfred G. Kerr of Woburn, Mass., and John Burke of Newton Highlands, Mass. Bottom row: C. Delano of New Bedford and Thomas Friar of Fall River

Double Profit — Satisfied Trade

Whether Building or Remodeling install

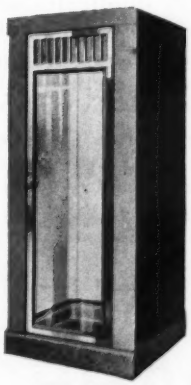
Fiat SHOWER BATH COMPARTMENTS

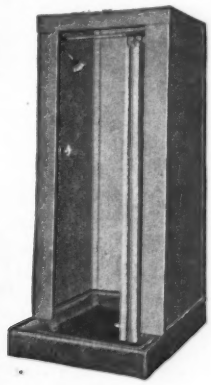
Your customers are interested in the FIAT Shower Bath Compartment—that makes sales easy. The long, trouble-free life of the FIAT Compartment makes satisfaction assured . . . and the entire profit—both on the equipment as well as the labor of installation—is yours.

No contraction or expansion, no settling can affect FIAT Shower Bath Compartments because they are not a component part of the building. That's why they are absolutely and permanently leakproof. They will outlast the building—and there are no kicks, no comebacks, no free service.

Built in a wide range of sizes and designs. The Admiral is furnished with Armco steel walls with white vitreous enamel finish, the same as bath tubs. The Ensign has high-grade specially prepared galvannealed steel walls with prime coat or Duco in various colors.

Shower bath doors furnished separately if desired. Send in the coupon for full details.





FIAT shower compartments are of knocked down construction—go easily through any door to place of installation. Installed on rough or finished floor. Eliminates tiling, lead pans, grouting, etc. Special patented construction makes enclosure absolutely leakproof. Here are two popular models—the Ensign with extended receptor and the Admiral with regular receptor and chromium plated door.

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New York Office and Display Room
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Fiat Metal Mfg. Co.
1211 Roscoe Street, Dept. 652.
Chicago, Ill.

Gentlemen: Please send me full details on FIAT Shower Bath Compartments and special show room display offer

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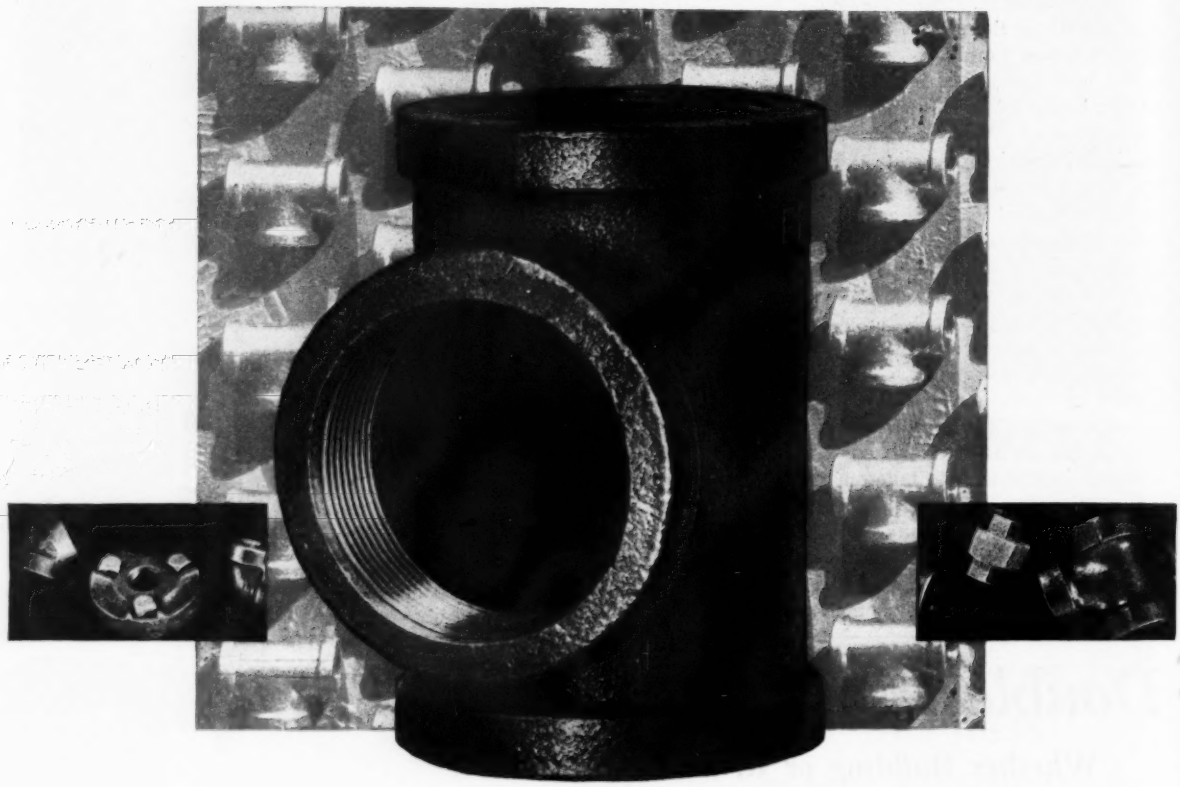
City.....State.....

A MILLION TWINS!



ALWAYS ALIKE—always dependable—Square "Gee" fittings are twin-duplicates of each other—ready to grab quick and hold tight. Ready to cut labor costs—to do a better job.

The uniform goodness of Square "Gees" is assured by Grabler manufacturing methods—by molds-to-the-metal casting—by patented tapping machines—by vigilant inspection at every step.

A brand new Costalog, complete with piece prices on malleable fittings, is ready. If you have failed to receive your copy just tell us. One will go forward to you in a hurry.

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Factory: Cleveland · *Warehouses:* New York · Chicago · San Francisco · Los Angeles

YOUR FITTING PROBLEM IS SOLVED WHEN YOU SAY SQUARE "GEES"

SQUARE Pipe

"GEE" Fittings

MALLEABLE, CAST IRON

DRAINAGE, BRASS

Louisiana–Mississippi Masters Meet in Shreveport

C. A. Hunter of Alexandria re-elected president; B. L. Knost of Pass Christian re-elected vice president

C. A. Hunter

THE Louisiana-Mississippi Association of Plumbing and Heating Dealers convened on April 25 and 26 at Shreveport, La., for its ninth annual convention. The assembly of guests and delegates met at the Washington-Youree hotel.

The features of the second day's session were the election of officers for the coming year and an address by National Director Richard G. Thomas of San Antonio, Tex.

Evidencing an unwillingness to release the members of the executive body who have served during the past year, the convention re-elected C. A. Hunter of Alexandria, La., president; B. L. Knost of Pass Christian, Miss., vice president; and L. C. de Leon of New Orleans, La., was re-elected secretary-treasurer.

The board of directors consists of C. O. Rundle of Shreveport, La.; J. P. Davis of Jackson, Miss.; R. T. Craft of Lake Charles, La.; A. H. Grimaldi of New Orleans, and J. Frank McClellan of Monroe, La. C. O. Rundle and H. L. Schwan of Biloxi, Miss., were chosen to represent the association at the national convention to be held at Boston in June.

Those serving on the various convention committees were as follows: Auditing: P. Kenney, chairman, New Orleans; William Riley, Monroe, La.; and L. C. Rushworth, Lake Charles, La. Plumbing code: L. C. de Leon, chairman, New Orleans; C. A. Hunter, ex-officio, Alexandria, La.; R. T. Craft, Lake Charles, La.; J. G. McCarthy, Baton Rouge, La.; J. Frank McClellan, Monroe, La.; and C. O. Rundle, Shreveport. Registration and credentials: F. L. Rosenblath, chairman, Shreveport; A. E. Berlin, Alex-

A section of the official photograph of delegates and guests attending the convention of the Louisiana-Mississippi Association of Master Plumbers

B. L. Knost, vice president

andria; J. D. Butler, Monroe, and L. Oppermann, New Orleans. Resolutions: H. L. Schwan, chairman, Biloxi, Miss.; Preston Brasher, Alexandria; J. Frank McClellan, Monroe; J. G. McCarthy, Baton Rouge, La.; A. E. Fisher, Jackson, Miss.; N. F. Hicks, Lake Charles, La.; S. S. Wessell, Shreveport; O. P. McGregor, New Orleans, and E. C. Sutton, Greenwood, Miss. Housing: T. E. Hodges, chairman; J. C. Jorden, L. B. Roach and C. O. Rundle, of Shreveport.

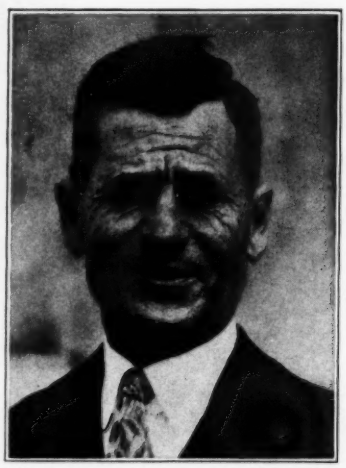
Presiding at the opening session of the convention, L. B. Roach, president of the Shreveport association, introduced the Rev. J. K. Smith, who gave the invocation. Mayor Lee E. Thomas of Shreveport was next introduced and welcomed the delegates and visitors to the city.

Members of the two-state association who made brief addresses at the opening session were President Hunter, Mr. Hodges and O. P. McGregor, president of the New Orleans association. Dr. E. L. Sandlin, president of the Caddo parish board of health, gave an address on the subject of "Rural Sanitation." Dr. Sandlin declared the master plumbers were allowing much good business in the smaller towns to slip through their hands.

The report of the secretary-treasurer was given by Mr. De Leon, who later gave a report of the activities of the plumbing code committee, as chairman of that group. G. W. Zoder of Alexandria, as chairman of the resolutions committee, delivered his final report, while Chairman Rosenblath reported for the committee on registration and credentials.

Director Thomas Addresses Convention

Director Thomas referred to the death of President John A. Quinn of Philadelphia, and asked the members of the Louisiana and Mississippi organization to give their full-hearted support to President George H. Drake of Buffalo. "It is one thing to know that at a certain time," said Mr. Thomas, "you will be called on to assume the management of a great organization, and to a great extent prepare yourself for that task, but to be called upon suddenly to assume that office and carry on the program of another man requires a tremendous amount of concentration and a neglect of your own personal business."



L. C. DeLeon, secretary-treasurer

"The national association," he continued, "through its president, board of directors and various committees is doing a splendid work in solving business problems, and educating the apprentice in the school, so that when he will have served his term as an apprentice, he will be thoroughly equipped, not only practically, but will have been thoroughly grounded in business ethics, and the necessity of demanding

Another section of the photograph of delegates and guests attending the convention of the Louisiana-Mississippi Association of Master Plumbers

For a *real* tub installation

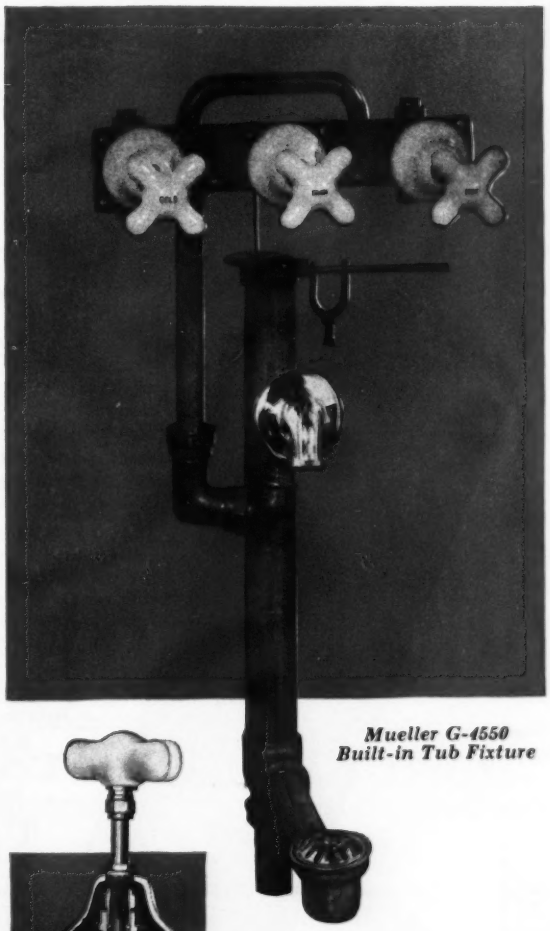
BUILT-IN equipment for the bath where you want real appearance and real service. Just jot down two MUELLER numbers—G-4450 for the fixture and G-5365 for the Valves.

The drain is of the concealed standing type and built with the usual MUELLER foresight for ease of installation and accessibility. Metal parts of MUELLER virgin bronze—noted for its long service life. All exposed metal has the durable and beautiful MUELLER chromium finish.

The MUELLER Valves will render trouble-free service longer than the life of the building itself. There is nothing to wear out, since no moving parts touch the valve body. The seat is chromium plated for extra service. Both seat and sleeve can be renewed if necessary, from the outside. The waterway through the complete valve assembly has a greater capacity than half-inch pipe.

A liberal escutcheon adjustment insures snug fit to the wall. Roughing in time is saved by the finished wall line marked on the valve. No wobbly handles—the spud is slotted for tight connection to stem with lock nut.

These two units assure an installation worthy of your endorsement. Write today for full information. MUELLER CO., (Established 1857), Decatur, Illinois. *Branches:* New York, Dallas, Atlanta, Chicago, San Francisco, Los Angeles. Canadian Factory: MUELLER, Limited, Sarnia.



Mueller G-4550 Built-in Tub Fixture

Mueller Built-in By Pass Valve No. G-5365

MUELLER

Plumbing Bronze and Vitreous Ware

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The
BUILDING
WORLD
of TODAY
—Uses "Spang" Steel Pipe with a confidence born of the sterling performance of many thousands of yesterdays.
If you too would enjoy the economy and satisfaction of this time-tried, time-proved pipe for as many tomorrows, specify "Spang" on your Welded Pipe requisitions,—"the pipe that Time forgets."
SPANG, CHALFANT & CO., INC.
General Offices:
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Mills: Etna, Pa.
Sharpsburg, Penna.
Ambridge, Penna.
SPANG
Welded
Steel Pipe

a profit for his work because of known overhead, through an adequate accounting system."

Speaking on business policy problems, Mr. Thomas said, "The plumbing and heating contractor, in order to be successful should have confidence in himself and in his business; also, the confidence of the public is a permanent and valuable asset.

"He should know his costs and overhead by keeping a complete system of accounting. In so doing, he will be able to classify and analyze the expense of conducting the business at all times, but be sure you are not deceiving yourself at any time about actual conditions.

"I will not attempt to explain all the ramifications leading up to the ills of the plumbing and heating industry; every contractor in the industry has his own particular experience.

"What we call cut-throat competition is often ignorance of business costs and ethics, poor business judgment and selfishness. These all contribute to illogical and unsafe bidding."

Resolutions Adopted

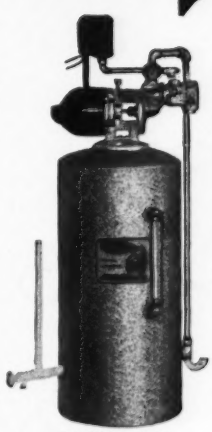
An important resolution adopted at the convention involved the separation of the contract for mechanical equipment from the general contract. The enactment of such a regulation, it is held, will afford the architect more certain selection of competent and efficient contractors and insure a higher standard of work. The resolution recommended that the association present the following act at the next session of the Louisiana legislature:

"An act to regulate the preparation of plans and specifications and the awarding of contracts for the erection, construction and alteration of public buildings in this state.

"Hereafter in the preparation of plans and specifications for the erection, construction, alteration or repair of any public buildings in this state, whether the same are to be erected, altered, or repaired by the state or any political subdivision thereof, when the entire cost of such work will exceed one thousand dollars in amount, it shall be the duty of the architect, engineer or other person preparing such plans and specifications, to prepare separate plans and specifications for the plumbing and gas fittings, and all work kindred thereto and of the steam and hot-water heating and ventilating apparatus, steam power plant and work kindred thereto, and electrical work; and it shall be the further duty of the board or body to award contracts for the erection, construction, alteration or repair of any such public building, to advertise for, in the manner provided by law, and to receive separate bids for each of said branches of work, and to award contracts to the lowest responsible bidder for each of such branches respectively.

"All acts or parts of acts inconsistent herewith are hereby repealed, and this act shall take effect immediately."

A later resolution took up the matter of letting contracts direct as compared with sub-letting through general contractors. The former practice was championed by the recommendation in that it gives the architect the opportunity to select the most



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WATER SYSTEMS

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There's only one moving part in the Burks assembly and it has no metal contact. You can't wear a Burks out and you can't break it down in service.

Just off the press—Water System Bulletin No. 90. Condensation Return Bulletin No. 91. Send today for either or both!

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Represented by ROLLIN C. WILSON
7 E. 42nd St., New York, N. Y. 261 Franklin St., Boston, Mass.
13 North Ave., East, Cranford, N. J.

In designing the GLOCO line, we have had in mind the problems of the man who installs them.

We have made it easy to supply a Tank Heater for any given standard size tank—or number of families. Forty-five different sizes to pick from.

We have made it easy to determine just which heater to order. A simplified price list tells you this at a glance—no guesswork as to size or capacity.

All GLOCO flat-top and laundry-top tank heaters are shipped in *sturdy crates*—no annoyance due to small breakages. By concentrating on GLOCOS, you have steady tank heater profits—and *short-cuts* to those profits.

Every GLOCO Tank Heater is tested to 300 pounds, and *guaranteed* to 125 pounds working pressure. If your Wholesaler does not have GLOCOS, write us and we will quickly tell you the names of some who do.

EVINS F. GLORE & SON, Inc.
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competent contractor for the particular job; it affords more efficient control over the execution of work, insures a higher quality of workmanship, and at the same time serves more equitably the financial interests of both owner and contractor. In the face of these considerations, the convention assembly voted to petition the state association of architects, which is affiliated with the American Institute of Architects, requesting its co-operation and asking consent to separate the mechanical equipment from the general contract. It was also decided that each local association should communicate with the local chapter of the architects' institute.

In regard to the resolution adopted by the national association last year at Buffalo recommending that a committee be appointed by the president of the national association to confer with the Federal Trade Commission for the purpose of discussing conditions now existing in the contracting division of the plumbing and heating business, with a view to adopting a set of rules and establishing a code of ethics covering the activities in this industry, the Louisiana-Mississippi association voted to instruct its delegates to vote for only those rules presented by this committee which would be of benefit to the largest number of plumbing and heating contractors.

Since the improper installation of gas water heaters is a fire hazard and a menace to the health and well-being of the community at large the association voted to recognize gas water heaters as plumbing fixtures, and their installation as definitely a plumbing installation. It was then further resolved that the association petition all municipalities throughout the states of Louisiana and Mississippi having plumbing ordinances, that this item be recognized in their local ordinance as a plumbing fixture, and as being subject to inspection the same as other plumbing installations.

Separate resolutions of thanks and appreciation were tendered to the following: Mayor Thomas, the Rev. J. K. Smith, Dr. Sandlin, Robert A. Hunter, Shreveport attorney; the Shreveport Master Plumbers Association and Women's Auxiliary, National Director Thomas and President Hunter.

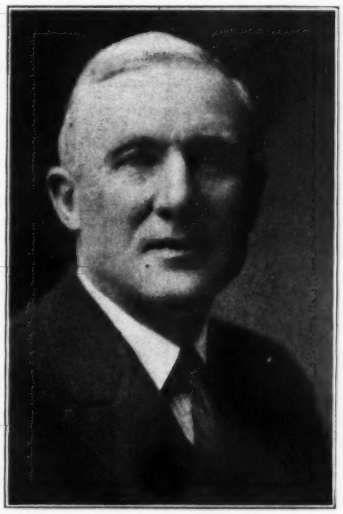
Climaxing the first day's activities was the annual banquet, attended by about 150 master plumbers, their ladies and visitors to the convention. Robert A. Hunter, Shreveport attorney, was the speaker.

In a brief address he pointed out the high qualities of the plumbing and heating profession, saying in part, "I have always greatly admired your profession because you are creators of comfort. We read a great deal about the magnificent castles and palaces of old, but has it occurred to you that the person of humblest circumstances now has a more comfortable place in which to live than did any of the kings of olden days? And this condition has been brought about largely through your work."

The speaker lauded the Louisiana and Mississippi Association of Plumbing and Heating Dealers as "an organization of unlimited worth to the country."

Mr. Hunter's address was followed by a program of entertainment arranged by the Shreveport Ladies' auxiliary. This was followed by a dance.

National Convention Program Is Announced



P. W. Donoghue

THE forty-eighth annual convention of the National Association of Master Plumbers, to be held in Boston, Mass., June 24, 25 and 26, promises to be one of the largest and most interesting gatherings in the history of the National association. The reservations which are already coming in to the Hotel Statler, which is the headquarters hotel, and the other Boston hotels which have set aside rooms for the convention, indicate that the attendance will probably surpass all previous records. The demand for space at the exposition by May 1 had consumed all but twelve booths on the main floor of Mechanics' building, where the convention and exposition will be held. A few booths also remained open in the balcony of the exposition hall, where the restaurant will be located.

In addition to the delegates and guests from among the plumbing fraternity, a large attendance is expected at the exposition on the part of architects, engineers and home owners of New England who are interested in modern plumbing and heating equipment. A special invitation will be sent to all the architects and engineers in New England, urging them to visit the exposition. Through the wholesalers and Master Plumbers of Massachusetts, invitations and cards of admission will go to the home owners.

The members of the National Convention and Exposition Committee handling the preparations for the Boston gathering are as follows:

Chairman P. W. Donoghue of Boston, William N. Chesnut of Montclair, N. J.; George H. Drake of Buffalo, National president; Maney J. Feeney of Philadelphia, National secretary; James G. Gillespie of Boston, William K. Glen of Chicago, Edward C. Kelly and Robert A. LaCentra of Boston, Archie M. Maddock of Trenton, N. J.; Joseph A. Maynard of Boston, Charles B. Nash of Pittsburgh, Pa.; Thomas F. Nolan of Albany, N. Y.; Richard T. Thatcher of Fairhaven, Mass.; C. W. Wanger of Philadelphia and Wallace T. Wordell of Taunton, Mass.

A feature of the plans this year will be the program to be offered by the Special Entertainment Committee, the members of which are as follows: Chairman C. W. Wanger, E. L. Flentje, Russell G. Creviston and W. K. Glen, all of Chicago; Albert B. Dibble of New Haven, Conn.; Maney J. Feeney, C. B. Nash, Walter J. Kohler, Jr., of Kohler, Wis.; James G. Gillespie, R. A. LaCentra, B. Lane, Maurice Lynch and John Slattery, all of Boston. Mr. Gillespie is vice-chairman of the Convention and Exposition Committee and also at the head of the Boston group in the Special Educational Committee.

The program of the latter committee will include the presentation of nationally known experts who will address the convention on Tuesday and Wednesday, June 24 and 25. The committee will also give a special program on the afternoons of these days starting at 3:30 o'clock and consisting on Tuesday of three speakers who will discuss business-getting methods for master plumbers who have up-to-date shops in the heart of the downtown section, those who conduct "shops on wheels" and those who confine themselves to the larger contract work.

On Wednesday afternoon at 3:30 o'clock there will be a three-act play given by the Yale Dramatic School, entitled "Father and Son" and based on a plumbing establishment of an out-of-date and an up-to-date type.

The Convention Program

The following tentative program for the business sessions of the convention, to be held in Grand Hall, Mechanics' building, has been announced:

MONDAY, JUNE 23, 1930

10:00 a. m.—Meeting of Board of Directors, N. A. M. P., Parlor "D", Mezzanine Floor, Hotel Statler.

10:00 a. m.—National Plumbers' Exposition opens at Mechanics' Building. Special features of interest to Master Plumbers in attendance.

TUESDAY, JUNE 24, 1930

10:00 a. m.—Opening session of Convention in Grand Hall, Mechanics' Building.

Introduction of National President, Mr. George H. Drake, by President Albert E. Roberts of the Boston Master Plumbers' Association.

Call to Order—President George H. Drake.

Song—"Star Spangled Banner."

Invocation—

Welcome to Massachusetts—Governor Frank G. Allen of the State of Massachusetts.

Address of Welcome—President Albert E. Roberts of the Boston Master Plumbers' Association.

Welcome to Boston—Hon. James N. Curley, Mayor of Boston.

Response to Welcome—National Director Charles M. Swinnerton.

Address of Welcome—Mrs. H. L. Rose, President of the Women's Auxiliary of the Boston Master Plumbers' Association.

Response to Welcome—Mrs. W. B. McAndrew,

President of the Women's Auxiliary of the National Association of Master Plumbers.
Introduction of Manufacturers, and Other Guests of the Convention.
Appointment of the following Convention Committees:
Auditing Committee.
Credentials Committee.
Memorial Committee.
Resolutions Committee.
Reading Clerk.
Sergeant-at-Arms.
Assistant Sergeant-at-Arms.
Preliminary Report of Credentials Committee.
Reading of Communications and Resolutions.
Report of National Chairman of Convention and Exposition Committee—Mr. P. W. Donoghue.
Address by speaker representing Special Educational Committee.

1:30 p. m.—Roll Call of Past Presidents and Charter Members—Past President Samuel F. Wilson.
Report of Memorial Committee—Past President Henry E. Longley.
Invocation.

2:30 p. m.—Adjournment.

AFTERNOON SESSION

3:30 p. m.—Program of Special Educational Committee—Mr. C. W. Wanger, chairman, presiding. (Grand Hall, Mechanics Building.)

WEDNESDAY, JUNE 25, 1930

10:00 a. m.—Opening of Second Convention Session—Grand Hall, Mechanics Building.
Report of Conference Committee—Mr. Frederick W. Quinter, chairman.
Report of Standardization Committee—Mr. Jere L. Murphy, chairman.
Report of President—Mr. George H. Drake, national president.
Report of Treasurer—Mr. George W. Frank, national treasurer.
Report of Secretary—Mr. Maney J. Feeney, national secretary.
Report of Board of Directors—Mr. H. O. Green, national director.
Address by speaker representing Special Educational Committee.
Review of Educational Progress for 1929 and 1930—Dean C. B. Connelly, Director of Industrial Relations, Carnegie Institute of Technology, Pittsburgh, Pa.
Report of Resolutions Committee.
Report of Educational Committee—Mr. Albert C. Dibble, chairman.
Report of Scholarship Committee—Mr. Frank J. Fee, chairman.
Report of Apprenticeship Committee—Mr. John J. Shanahan, chairman.

2:30 p. m.—Adjournment.

Following adjournment delegates, guests and ladies will pose for official photograph in front of Mechanics Building, adjoining Convention Hall.

AFTERNOON SESSION

3:30 p. m.—Program of Special Educational Committee—Mr. C. W. Wanger, chairman, presiding. (Grand Hall, Mechanics Building.)

THURSDAY, JUNE 26, 1930

10:00 a. m.—Opening of final Business Session of Convention, Grand Hall, Mechanics Building.
Final Report of Credentials Committee.
Report of Auditing Committee.
Unfinished Business.
Nomination of Officers.
Balloting for Officers.
Invitations for 1931 Convention.
Adjournment sine die.

Many Exhibitors Will Display Products

THE demand for space at the exposition of plumbing, heating and allied products has consumed practically all of the available space. On May 1 there were only about a dozen booths left unsold on the main floor of the Mechanics' building, where the convention and exposition will be held. A few booths also remained open in the balcony of the hall, where the restaurant will be.

The exposition, which opens at 10:00 o'clock Monday morning, June 23, will be in charge of the following committee on exhibits: Andrew F. Curtin, Medford; Jonas A. Laraway, Winchester; H. L. Rose, Jr., Cambridge; W. J. Hanson, Somerville; Angelo Minella, Brighton, and David Craig, William P. Kane, C. J. Donoghue, H. A. Snow, George F. Crawford, James A. Cotter, Harry L. Deacon, M. H. Monks and Jos. J. Williams, all of Boston, Mass.

Following is the list of firms who had contracted for exhibit space by May 1:

Name	Booth No.
American Brass Co., Waterbury, Conn.	77 and 78
American Radiator Co., 40 West 40th St., New York, N. Y.	71, 72, 85, 86, 98, 99, 112, 113
American Tube Works, 10 Oliver St., Boston, Mass.	18
J. H. Balmer Company, 259 Plane St., Newark, N. J.	36
Bareham & Saunders, 366 E. Main St., Rochester, N. Y.	30
Bethlehem Steel Co., Bethlehem, Pa.	17
Blake Specialty Co., Rock Island, Ill.	3
Blue Seal Chemical Co., Roselle, N. J.	51
Boston Brass Co., 56 Plympton St., Waltham, Mass.	50
Boston Master Plumbers' Assn. Mr. Albert E. Roberts, Pres., 70 Washington St., Boston, Mass.	141
Wm. A. Bradford, 11 Maple St., Quincy, Mass.	117
Martin A. Brennan, 116 Warren St., Brighton, Mass.	230
Burnham Boiler Corp., Irvington, N. Y.	53
A. M. Byers Co., Pittsburgh, Pa.	6
Beaton & Cadwell Mfg. Co., New Britain, Conn.	129
Carpenter & Paterson, 1190 Bennington St., E. Boston, Mass.	55
W. A. Case & Sons Mfg. Co., 220 Delaware Ave., Buffalo, N. Y.	97
Central Foundry Co., 420 Lexington Ave., New York, N. Y.	62, 63, 64
Central Tube Co., Pittsburgh, Pa.	56
Chase Brass & Copper Co., Waterbury, Conn.	58 and 59
Chicago Faucet Co., 2700 No. Crawford Ave., (Dept. "B"), Chicago, Ill.	224
C. F. Church Mfg. Co., Holyoke, Mass.	34
Conover Company, 115 Chauncey St., Boston, Mass.	46
Crane Company, 836 So. Michigan Ave., Chicago, Ill.	73, 74, 75, 82, 83, 84
Crest Mfg. Co., 4-65 48th Ave., Long Island City, N. Y.	66
Crystal Oil Burner Corp., 1440 Broadway, New York, N. Y.	209
A. F. Curtin Valve Co., 76 Ship Ave., Medford, Mass.	8
Dahlquist Mfg. Co., A & West Third Sts., South Boston, Mass.	223
Decatur Pump Co., Decatur, Ill.	13
Dececo Company, 76 Batterymarch St., Boston, Mass.	7
Deming Pump Co., 112 Broad St., Boston, Mass.	14
Duriron Co., Inc., Dayton, Ohio.	1
DOMESTIC ENGINEERING, 1900 Prairie Ave., Chicago, Ill.	32
Enterprise Mfg. Co., 275 3rd St., Cambridge, Mass.	225
EverHot Heater Sales Co., 5189 Wesson Ave., Detroit, Mich.	29
Excelso Products Corp., 65 Clyde Ave., Buffalo, N. Y.	76
Fiat Metal Mfg. Co., 1203 Roscoe St., Chicago, Ill.	138
Stanley G. Flagg & Co., 1421 Chestnut St., Philadelphia, Pa.	68 and 69
Fox Furnace Company, Elyria, Ohio.	130
Gar Wood Engineering Co., 4196 Bellevue Ave., Detroit, Mich.	135

Name	Booth No.
Grinnell Company, 300 West Exchange St., Providence, R. I.	123
Hays Mfg. Co., Erie Pa.	28
Hoffmann & Billings Mfg. Co., 100 Second St., Milwaukee, Wis.	11
Holyoke Heater Co., 90 Sargeant St., Holyoke, Mass.	93
Albert B. Hultgren (Super-Vacuum Gas Appliance Co.), 44 Antwerp St., Milton, Mass.	206
Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago, Ill.	114
Jenkins Bros., 80 White St., New York, N. Y.	27
Jepco Mfg. Co., 146 Tyler St., Boston, Mass.	232
Johns-Manville Corp., 292 Madison Ave., New York, N. Y.	2
Jones & Laughlin Steel Corp., Pittsburgh, Pa.	23
Josam Mfg. Co., 4900 Euclid Bldg., Cleveland, Ohio.	107 and 108
John G. Kelly, Inc., 210 E. 45th St., New York, N. Y.	40
Kewanee Boiler Co., Inc., 570 Seventh Ave., New York, N. Y.	25
Kohler Company, Kohler, Wis.	38, 39, 48, 49
Lunt-Moss Corp., 43 So. Market St., Boston, Mass.	24
Minneapolis - Honeywell Regulator Co., Minneapolis, Minn.	35
J. L. Mott Iron Works, Lalor & Hancock Sts., Trenton, N. J.	136
Mueller Brass Co., Port Huron, Mich.	12
Mueller Co., Decatur, Ill.	116
Nash Engineering Co., South Norwalk, Conn.	60 and 61
National-Boston Lead Co., 800 Albany St., Boston, Mass.	5
National Tube Co., 1802 Frick Bldg., Pittsburgh, Pa.	15 and 16
Nye Tool & Machine Works, 4120 Fullerton Ave., Chicago, Ill.	70
Oster Mfg. Co., Cleveland, Ohio.	95 and 96
Perfect Ventilator Co., 22 Franklin St., Malden, Mass.	208
Plumbers' Trade Journal, 239 W. 30th St., New York, N. Y.	54
Radiator Specialty Co., Charlotte, N. C.	4
Rawlplug Company, Inc., 92 Lafayette St., New York, N. Y.	137
Reading Iron Company, 250 Stuart St., Boston, Mass.	115
Reliable Automatic Sprinkler Co., 250 W. 27th St., New York, N. Y.	222
Richardson & Boynton Co., 260 Fifth Ave., New York, N. Y.	120
Ridge Tool Co., Elyria, Ohio	132 and 133
Riverside Boiler Works, 50 Harvard St., Cambridge, Mass.	47
Ruud Mfg. Co., 2934 Smallman St., Pittsburgh, Pa.	67
Sanitary & Heating Age, 239 W. 39th St., New York, N. Y.	10
Sands Heater Company, 114 Broad St., Boston, Mass.	126
J. A. Sexauer Mfg. Co., 2469 Third Ave., New York, N. Y.	33
Sloan Valve Co., 4300 W. Lake St., Chicago, Ill.	119
H. B. Smith Co., 640 Main St., Cambridge, Mass.	26
Smith & Wesson, Springfield, Mass.	109
Somerville Iron Works, 3637 S. Ashland Ave., Chicago, Ill.	121
Speakman Company, Wilmington, Del.	89 and 90
Stack Heater Company, 250 Stuart St., Boston, Mass.	65
Standard Sanitary Mfg. Co., Pittsburgh, Pa.	100, 101, 110, 111
Standard Tank & Seat Co., 308 No. Front St., Camden, N. J.	122
B. F. Sturtevant Co., Hyde Park, Boston, Mass.	81
Taunton - New Bedford Brass & Copper Co., Division of Revere Brass & Copper, Inc., 267 W. Water St., Taunton, Mass.	42 and 43
Tirrill Gas Machine Corp., 50 Church St., New York, N. Y.	41
Toledo Pipe Threading Machine Co., Toledo, Ohio.	139 and 140
Trenton Potteries Co., Trenton, N. J.	87 and 88
Union Metal Works, Inc., Chelsea, Mass.	94
Vinco Company, Inc., 75 Vesey St., New York, N. Y.	91 and 92
Walker Dishwasher Sales Co., 470 Stuart St., Boston, Mass.	134
Walworth Company, Statler Bldg., Boston, Mass.	79 and 80
F. W. Webb Mfg. Co., 56 Elm St., Boston, Mass.	37
Weil-McLain Co., 641 W. Lake St., Chicago, Ill.	44 and 45
Wolverine Brass Works, Grand Rapids, Mich.	102 and 103
Woodward - Wanger Co., 1106 Spring Garden St., Philadelphia, Pa.	104 and 105
"X" Laboratories, 25 W. 45th St., New York, N. Y.	52
Youngstown Sheet & Tube Co., Youngstown, Ohio.	106
Waltham Oil Burner Corp., High St., Waltham, Mass.	118

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Breezo-Fin Unit Heaters should form an important part in your heating contract program. The ease with which they may be installed and their outstanding dependability make them highly desirable from a profit standpoint. Six sizes, 12 to 36 inches, assure a proper unit for every job.

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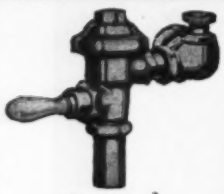
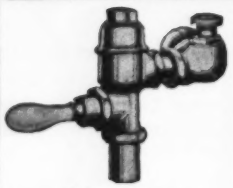
"HEAT WITH UNIT HEATERS"



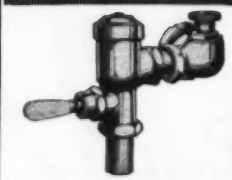
Royal

The valve that can't be held open to waste water



Marine

The valve that handles "bad" water easily



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Engineers witness striking tests of new Syphon-Preventor

Prominent health and sanitary authorities have observed a striking and conclusive demonstration of the Sloan Syphon-Preventor at the Chicago plant of the Sloan Valve Company.

Leading flush valves with their devices designed to prevent the syphoning of polluted water from a closet bowl into the main supply were tested on stock fixtures under a vacuum ranging from a fraction of an inch to a complete and instantaneous vacuum of over 29 inches.

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The Sloan Syphon-Preventor positively prevented the syphoning of water from the closet bowl into the supply regardless of the degree of vacuum, or the type, condition or location of the flush valve. No other device withstood these tests without syphonage occurring.

No extra cost

The new positive and *tested* Syphon-Preventor is available to every purchaser of Sloan Flush Valves at no additional cost.

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MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

April Construction Awards Larger Than In Eight Months

BUSINESS in plumbing and heating continues at just about the same level maintained over the past month, with sporadic indications of fairly good activity. Requirements of plumbing and heating contractors generally are not comparable with the same period of a year ago, but demand for some commodities in various sections of the country is showing progressive improvement. Judging by the majority of reports received, jobbers are not overindulging in excessive buying, but are keeping their inventories well up in order to be able to give prompt attention to contractor needs. Producers, as a rule, are keeping their production schedules pretty well attuned to the probable needs of the consumer market. Readjustments in prices on a few items, effective only in certain territories, have been announced during the period since our last review.

Contracts awarded in April for building and engineering projects in the 37 states east of the Rocky Mountains, totaling $483,251,700, *were larger than in any month since August of last year, according to F. W. Dodge Corp. The past month's record was 6 per cent greater than the total of* $456,119,000 *reported for March, but showed a loss of 25 per cent from the unusually large record for April,* 1929. *For the first four months of the year awards totaled* $1,580,398,900 *as compared with* $1,897,889,800 *for the corresponding period of* 1929, *a decline of* 17 *per cent. Contemplated new work of all kinds reported in April amounted to* $954,617,400 *compared with* $732,735,900 *in March and* $940,249,100 *for April,* 1929.

NEW ENGLAND

Contractors' Requirements Are Moderate—

Activities in the plumbing and heating field in the New England area were neither enhanced nor depreciated in any large way during the foregoing weeks. Distributors of plumbing supplies report that April volumes were not entirely in accord with their expectations, several experiencing lower sales volumes as compared with the corresponding months of last year and others finding stability in this comparison. It is generally conceded that construction activities do not show sufficient progression to actively engage the services of plumbing and heating contractors. On the other hand, all engaged in the industry, manufacturer, wholesaler and contractor, continue to expend considerable effort in figuring and endeavoring to close some of the many good sized contracts which are pending and the realization of which are assured within the next several months.

Jobbers have indicated inclination to augment their stocks of some commodities in view of expected better demand from their trade, soil pipe foundry representatives report somewhat better tonnages, and the weekly volumes of steel and wrought iron, mill salesmen say, show some betterment. There is also evident some pick-up in wholesalers' commitments for malleable, cast iron and brass commodities. Potters' receipts of special pieces and enameled-ware manufacturers' shipments of colored and acid-resisting ware seem to sustain whatever levity in demand for staple items obtains from wholesalers. There is no indication of delivery service extension on the part of manufacturers, for the majority are well equipped and are upholding their inventories through well sustained production schedules. Distributors are sufficiently stocked for their near-at-hand needs. With the exception of reductions in prices of copper range boilers, effected by the majority of makers, makers' quotations to their distributors continued unchanged.

Soil Pipe

Foundry representatives show some optimism in their reports of present and prospective business. There is extant a seasonably good volume of direct-to-operation carload tonnage which should materialize within the coming several weeks. Wholesalers, in many instances, have bolstered their stocks in anticipation of better demand from their trade. Withdrawals from jobbers' warehouses by master plumbers are, at present, only of a moderate nature. Foundry prices have not been changed. Deliveries, both from sources and local distributing points, are expeditious.

Pipe—Brass, Steel and Wrought Iron

Recent reductions in makers' prices of brass pipe accounted for better interest in this commodity on the part of distributors and master plumbers. The latter are not presently in need of large quantities but are safeguarding themselves against any possible reaction of prices. The past several weeks have contained a betterment in shipments from steel mills, for early May consignments by distributors and direct-to-job orders are of better proportion than heretofore. Demand for wrought iron pipe has improved, for mill salesmen report increases in their weekly volumes. No price changes were reported during the period covered by this report. Deliveries in all cases are well executed.

Fittings

Wholesalers have been more concerned with the status of their stocks, for orders reaching makers' hands are of larger size than previously. This applies particularly to brass and malleable items while cast iron fittings, do, by no means, lack consideration of distributors. Makers are competing keenly for the business which jobbers have to offer and frequent repeat calls on purchasing departments of distributors are necessary, for com-

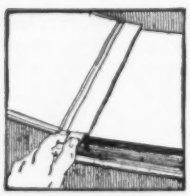
THE HANDY SPEEDLOK
Domestic Engineering Catalog Binder

Especially designed for the standardized catalog page adopted by the plumbing and heating industries

The SPEEDLOK is a quick operating catalog binder designed to fit reprints of catalog pages in "Domestic Engineering Plumbing and Heating Catalog" as well as all other catalog pages that conform to the standards adopted by the plumbing and heating industries.

Easy and speedy operation are special features of this binder. A slight pull on the concealed bar under the top cover unlocks mechanism when sheets are inserted. Equipped with bar for removing sheets when changes are made.

Minimum capacity 1¼ inches. By simply unscrewing extension posts capacity can be extended to 2¼ inches. Works perfectly for all requirements—either a few sheets or filled to capacity.



Covers are bound in heavy black Levant Grained Fabricoid, semi-flexible, very durable and attractive looking.

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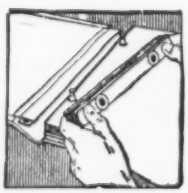
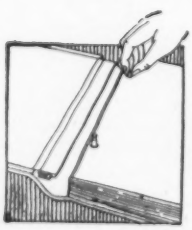


To lock Binder—bring top wing back over the posts—be sure posts fit in the holes in the top wing—then push in slide bar.

Separate the sheets where desired and slip sheets off the posts. Take out sheets or put in new ones as desired. These three moves take but a few seconds. Each operation is a natural one.



To increase or to decrease the capacity of the binder is a simple operation. The two posts are so constructed that they can be easily raised or lowered to meet the height requirements. Binder posts can be extended from 1¼ inches to 2¼ inches.

Price of binder—$3.00. Prices on quantities on application.

For Plumbing and Heating Contractors—

Many master plumbers and steamfitters assemble working catalogs from standardized catalog sheets filed in binders.

Domestic Engineering is in position to furnish without charge, upon request, loose sheets—which are reprints from catalog pages appearing in "Domestic Engineering Plumbing and Heating Catalog"— of several hundred manufacturers. They are standard catalog page size — 10⅝ x 8½ inches — are printed on a good grade of light paper and punched according to the standard adopted by the plumbing and heating industries. These sheets fit the SPEEDLOK binder.

For Jobbers' Salesmen—

The loose-leaf system reduces to the minimum the bulk and weight of catalog material required by the salesman. Only matter actually required for selling purposes need be carried in the binder. It does away with the necessity of carrying entire catalogs, booklets and circulars of various sizes and shapes.

Salesmen using the loose-leaf system have a great advantage over men not using this equipment—to say nothing of the added convenience, time and labor-saving features.

With a modernly equipped loose-leaf binder, the salesman can present his products in a more comprehensive manner than it is possible to accomplish by the old methods. Having all his material up to date in compact form and easily available, he can show latest specifications, answer questions or quote prices more readily.

When orders for binders are accompanied by requests for catalog reprints the binders will be equipped with the sheets desired and shipped complete.

Write for full details regarding loose sheets and binders.

DOMESTIC ENGINEERING

1900 Prairie Avenue *(Catalog Department)* **Chicago, Illinois**

mitments are for replacement and some bolstering, which over weekly periods, run into comparatively good totals. Revisions in list prices of malleable items were issued but discounts to wholesalers and contractors remained unchanged. This contained no price change of consequence. Deliveries are prompt.

Enameled Ware

Wholesalers' orders for stock purposes have increased in size during the past several weeks but not to the extent which makers had anticipated. The latter, however, find that there is to be had an increase in their volumes in the number of larger sized operations which have already been awarded and which will require delivery of enameled ware within the coming several weeks. Consumption of special ware in this territory is attracting makers' and jobbers' attentions in large measure. Sources are well equipped to ship staple ware as requested. No price changes have been effected by producers.

Pottery

Installations of staple earthenware do not assume large proportions and wholesalers are consequently disposing of only moderate quantities. There obtains, as in the case of enameled ware, a good demand for special ware, and pottery representatives as well as jobbers' salesmen are competing for this class of business. Major operations being planned necessitate considerable effort on the part of contractors, wholesalers and local representatives of manufacturers in preparing quotations. No price changes have been reported by potters. Shipments of staples from sources are being promptly executed.

Plumbers' Brass Goods

Buyers for wholesale houses in this territory are generally averse to placing sizeable orders insofar as their stocks on hand are sufficient to satisfy the present contractor demand and they, furthermore, are not influenced to any extent to purchase at the lower price levels recently established by makers. Master plumbers' needs continue moderate, jobbers' dispositions of cast brass items having shown some increase during the past fortnight. The lower price level announced previously has now been adopted by the majority of manufacturers. Deliveries are not delayed.

Range Boilers

Local representatives aver that April receipts carried over a substantial amount of business in the way of actual deliveries for the opening days of this month. While contractor demand for small sized range boilers has not been brisk, consumption of storage systems has helped to equalize whatever shortcomings have obtained. Makers also report fairly good seasonal shipments of large size boilers and pneumatic water tanks. The recent reduction in makers' prices of copper range boilers influenced some jobbers to augment their inventories. No price changes have been effected by galvanized range boiler manufacturers. Factories show ability to ship on short notice.

Boilers and Radiators

Both distributors and manufacturers report inactivity in their shipments. Consumption needs are such that but little new heating equipment is required and contractors are engaged more in figuring prospective work than in present installations. Local warehouses of makers are amply equipped for the present and delivery delays therefrom, or from wholesalers' warehouses, are rare. Producers' price sheets are unchanged.

CENTRAL WEST

Activity Shows Conservative Trend—

The plumbing and heating business in the Central West is showing, as a whole, little inclination to reach the high level of activity ordinarily characteristic of this season of the year.

Most wholesalers have stocks on hand sufficient to meet the current requirements of master plumbers and heating contractors, and their orders to manufacturers represent only a desire to keep their inventories filled in. Deliveries are quickly made by producers, who are carrying stocks large enough to satisfy all concerned. No price changes have been reported since our last fortnightly review.

New contracts let for building and engineering work in April in the Chicago territory, according to F. W. Dodge Corp., aggregated $64,758,800 compared with $67,557,500 in the previous month. During April of the last year building awards totaled $80,893,500. A total of $195,454,900 was contracted for since the first of January compared with $293,011,200 in the same period of 1929.

More than 31 per cent of the April lettings was for public works and utilities, which aggregated $20,047,600; awards for residential buildings totaled $19,027,200, or 29 per cent; commercial buildings amounted to $11,249,400, or 17 per cent; and industrial construction aggregated $6,347,200, or 10 per cent.

April contemplated work reported, totaled $77,443,000, compared with $79,151,500 for March, and against $106,113,600 for the total reported in the corresponding month of last year.

Soil Pipe

Manufacturers' agents in this section report only very slight increases in the movement of this product to jobbers, which wholesalers say is a direct reflection of contractor demand. Both wholesalers and manufacturers' agents say that consumption is somewhat below the ordinary level for this season of the year, but hope is yet held for material improvement. Manufacturers' prices to jobbers are holding firm. Makers are able to grant shipments promptly.

Pipe—Steel and Wrought Iron

No changes in prices of these products have been announced since our last published report. Manufacturers' salesmen interviewed report an improvement in the steel pipe market over the preceding two weeks. Wrought iron pipe, however, is said to be holding at about the same moderate level of the past thirty days. A slight increase in the number of building operations being started is expected by sellers to accelerate the market in these items in the near future. Prompt shipments are being made.

Fittings

Contractor demand in the fittings division has shown little inclination to perform at more than a moderate pace. Makers' representatives report that jobbers are stocking only in sufficient amounts to fulfill current orders. Producers are well stocked and can deliver readily. There has been no change in prices during the period since our last report was published.

Enameled Ware

Orders from wholesalers for enameled ware are described as being spotty, as jobbers are maintaining their inventories at a level commensurate with the anticipated contractor demand. Much of the construction started this year, of course, has not reached the stage of requiring finishing materials as yet. Wholesalers report that current contractor requirements are below the mark established for the same period of last year. Manufacturers are shipping promptly and prices are unchanged.

Pottery

Requirements of master plumbers continue to maintain a low level and, as a result, wholesalers show little inclination to contract for other than near-at-hand requirements. Jobbers, as a general rule, have sufficient supplies of staples on hand to take care

of their customers' needs quickly and specials are available at sources of production in the ordinary time. It is felt, however, that consumer business in pottery commodities is seasonally fair. The price situation in pottery items has not changed since our last review.

Plumbers' Brass Goods

The reduction in prices on tubular brass goods and brass valves by many manufacturers, announced in our last fortnightly report, caused a certain amount of increased activity in this market during the last two weeks. The master plumber demand for brass goods has been only seasonally fair, though, consisting, in part, of requirements necessitated by renovation work and improvements. No difficulty is experienced in securing prompt shipments from makers.

Range Boilers

Contractor requirements in range boilers have remained at about the same level as characterized that market over the preceding fortnightly review period. While installations of range boilers have been seasonally good, there has been no excessive tax on jobbers' stocks; and wholesalers' replacements have continued at a conservative pace. Producers, on the whole, report a satisfactory activity, and are able to maintain prompt deliveries to jobbers. No price changes have been announced since our last published report.

Boilers and Radiators

Activity in these commodities is somewhat under that of the same period of a year ago. March shipments of round boilers, in 1000's of lb., according to the United States Department of Commerce, were 4,935 as compared with 7,208 for March, 1929, and 5,516 for February, 1930. March shipments of square boilers were 8,854 as compared with 11,476 in March of 1929, and 10,191 for February, 1930; while March shipments of radiators, in 1000's of square feet of heating surface, fell to 3,912 as compared with 6,116 for March, 1929, and from 4,433 for February, 1930.

NEW YORK

Volume Characterized As Spotty—

Representative wholesalers interviewed during the past fortnight report that in the main the volume of business is not maintaining the upward trend evidenced during March and April; there are some large projects now under way which give a rather fitful appearance of activity from time to time, however. There was the usual increase in first of the month shipments from plants to wholesalers, but in the opinion of most the volume did not approach the increase usually looked for at this time on the basis of seasonal trend, and was in nowise comparable with that of a year ago.

Activity in the export field continues somewhat below normal, according to several interests interviewed, with declines in shipments registered in almost every country as compared with the amount going out a year ago at this time. The decline in the prices of raw commodities is said to have affected sales adversely in two ways: first because the purchasing power of the producing countries has been seriously curtailed and, secondly, because buyers in those countries are well aware of the decline in the price of metals and have deferred purchases in anticipation of lower prices.

April construction contracts awarded in the Metropolitan area of New York aggregated $101,051,700, according to F. W. Dodge Corp. This was 13 per cent greater than the total of $89,749,700 for the preceding month; the corresponding month's total for last year was $153,113,400. Since the year opened contracts for building and engineering projects let in the Metropolitan area have amounted to $336,094,300 compared with $409,362,100 for the first four months of a year ago.

Public works and utilities were the most active type in the April contract total, aggregating $35,392,200, or 35 per cent of all awards. Residential buildings, with $26,550,700, or 26 per cent, was second. Hospitals and institutions totaled $13,499,400, or 13 per cent; and commercial buildings amounted to $11,237,200, or 11 per cent.

Contemplated new construction reported in April reached a total of $199,845,600, compared with $228,434,600 reported in the preceding month; the April, 1929, total was $361,871,100.

Soil Pipe

Shipments of soil pipe continue to hold at low levels, according to several wholesalers interviewed, and although the tonnage moving is small, prices are being firmly maintained by wholesalers and manufacturers alike. Inventories continue to be at nominal levels at practically all points and distribution.

Pipe—Brass, Steel and Wrought Iron

The further revision of the price of copper has caused adjustment in the quotations on brass pipe to correspond, according to several interests interviewed. Buyers are showing a tendency to specify more liberally at present, although the tonnage moving is not heavy at most points of distribution. There have been no changes in price on steel or wrought iron pipe and the volume is characterized as being steady by most interests.

Fittings

Quotations on various types of fittings remain unchanged since the time of our last report and the movement of material is said by several wholesalers interviewed to be somewhat heavier, on a relative basis, than that of other commodities. Inventories are characterized as being moderate among wholesalers and somewhat below normal at plants.

Enameled Ware

Quotations on enameled ware remain firm among wholesalers and manufacturers. There has been some increase in the volume of shipments about the first of the month, but on staple items the volume is not as large as that of a year ago, according to most interests. There has been some increase in inquiry in the outlying sections for improvements and replacements for summer residences during the past fortnight.

Pottery

Shipments from plants are characterized as being prompt in most instances and wholesalers' inventories are at no more than fair working levels, according to most reports. There have been no changes in prices and distribution to consumers is characterized as being slow by most wholesalers interviewed.

Plumbers' Brass Goods

Notwithstanding the uncertainty which prevailed in the copper market, manufacturers and wholesalers alike report that there has been some increase in activity in the movement of material since the first of the month. Several manufacturers have revised quotations based on the lower price of copper and buyers are reported to be specifying somewhat more freely now that the atmosphere in regard to price has been somewhat clarified. According to most reports, shipments of tubular goods are somewhat better on a comparative basis than those of cast brass, although in neither case is the volume comparable with that of a year ago. Inventories are said to be at low levels especially at manu-

facturing plants, although in most instances prompt shipment can be made.

Range Boilers

The movement of range boilers for replacement work continues with little change since the time of our last report. New building of one-family residences is at a low ebb with the exception of one large operation on Long Island and wholesalers report that their shipments correspond closely to the activity for this type of construction. Prices remain unchanged from the time of our last report, the price sheet having been in effect for somewhat over a year. The market is reported firm at the current level.

Boilers and Radiators

Boiler and radiator shipments correspond closely to seasonal trend at this time of year and aside from one or two large projects the movement of material is not of heavy tonnage. Inventories are at a low level among wholesalers and manufacturers, but no delays are experienced in obtaining material in most instances, according to reports.

MIDDLE ATLANTIC

Greater Volumes Apparent—

Manufacturers' representatives and wholesalers, generally, report that the first two weeks of May show increases in the form of orders received. In almost all cases, business does not reach last year's figures for the same period, however. Whatever upward trend business has shown can be traced to the normal seasonal requirements to be expected at this time. While building reports point to a larger amount of projects being started each month since the first of the year, the figures as a whole are lagging behind last year's reports, therefore, activity in the plumbing and heating field is reduced proportionately.

Industrial activity is maintained at a good rate, and those jobbers engaged in supplying this trade are enjoying the bulk of their business from these channels. The moderate turnover of wholesalers' stocks still exists and little stock buying is in evidence, dealers keeping pace with contractor requirements only.

With the exception of a slight increase in price on porcelain ware by some makers no price changes occurred during the fortnight.

According to the F. W. Dodge Corp. report for April, an increase of 32 per cent was recorded over the total of building contracts awarded for March, the April figures being $62,781,300. In April, 1929, the total contracts awarded for the 16th week, April 19 to 25, amounted to $14,610,600 and $15,306,200 for the 17th week from April 26 to 30.

Soil Pipe

Representatives of soil pipe producers contend that business maintained about an even pace during the fortnight and if any variation in volumes occurred the change was for the better. Dealers report a steady contractor demand, although the total is lagging in comparison to last year's demand. Foundries have ample stocks on hand to make quick deliveries to wholesalers, whose stocks are not large. Prices are unchanged.

Pipe—Brass, Steel and Wrought Iron

The decline in the number of building projects in this section is reflected to makers of pipe, as their business is reported only seasonally fair for this time, when roughing-in material should be needed for construction. The revision in the prices of brass pipe after the drop in copper prices has not seemed to stimulate wholesaler business, the fortnight revealing about the same volume of business as the previous two weeks. Wrought iron pipe has shown a gradual increase in tonnages shipped since March, the past two weeks slightly exceeding the previous weeks but not up to last year's totals. Steel pipe business for May thus far equals last year's business according to one producer. Prices are unchanged and deliveries are prompt.

Fittings

Fitting business continues to show a slight improvement; the contractor demand shows an upward trend according to wholesalers. Jobbers' turnovers have been more active during the past fourteen days in all classes, yet much improvement is to be expected if the volumes of former years are to be reached. The approach of the roughing-in season should tend to stimulate the sale of these items, it is thought by many interviewed. Prices were decreased slightly about two weeks ago but remain firm at present. Deliveries are promptly made.

Enameled Ware

Much figuring is being done at this time by wholesalers and manufacturers on work contemplated, this phase occupying the greater part of their time. However, slight increases in volumes are noticeable and it is felt that they should continue inasmuch as the finishing material season is ahead. Enameled ware makers are well stocked and able to meet all jobber requirements in good time. Manufacturers' prices to wholesalers are generally reported quite steady at existing sheets, and there have been no changes announced by producers since our last review was published. Contractors report no difficulty in securing material as needed.

Pottery

Some potters published new sheets showing a slight increase in the price of porcelain fixtures during the fortnight. A slight increase in the price of vitreous china lavatories was also announced at the same time. Installations of vitreous china and porcelain have increased since the latter part of April, though only moderately. Projects are not in evidence in sufficient quantities to bring pottery volumes up to previous levels. Shipments are made promptly at manufacturing sources.

Plumbers' Brass Goods

The downward revision of prices by manufacturers during the past two weeks period did not cause wholesalers to increase their dispositions of materials appreciably. The uncertainty of the copper market is the cause of much of this aloofness on the part of jobbers, it is thought. Small orders predominate, as stocks are being maintained at a pace with contractor requirements. Deliveries from sources are satisfactorily executed in practically all instances and wholesalers are ordinarily meeting the demands of their customers in quick time.

Range Boilers

Activity in the range boiler field is just fair for this season, although May promises to produce a sizeable amount of orders, according to makers. April business of range boilers was equal or exceeded the same period for 1929. Wholesalers are committing themselves only when boilers are required by the trade from their stocks. As a whole, jobbers' stocks are of a good working quantity. Prices remain the same and plants are making delivery in ample time.

Boilers and Radiators

May shows a falling off in the sales of boilers and radiators, but as much estimating is being consummated at this time, it is felt by those producers' representatives interviewed that the next few months will show improvement. April, generally speaking, was a good month in the point of volume, exceeding March by quite a figure. Range boiler and radiator prices remain unchanged, and factories are delivering in a satisfactory manner.

SOUTHEAST

Business Holds At Fair Level—

Business in the plumbing and heating field in the Atlanta area continued at a fair level for the past fortnight. It is said that business is not up to the level of last year at this time, and while the volume of sales showed a slight upward trend at the opening of May, sales activities were spotty. For a few days activities in some lines would be good, then a decline would appear, giving the market a rather uncertain trend. However, most observers are optimistic regarding near future business, as considerable estimating is being done on contemplated work. This, however, is prospective work only.

Warm weather, prevailing in this section, is affecting heating lines to some extent, it is said. Construction work continues at a fair rate, and a number of large projects are nearing the contract letting stage, according to several architects interviewed. Wholesalers generally, have ample stocks on hand in the staple items to assure prompt deliveries to the trade. No price alterations have been announced since our last review and prices are holding firm at the published sheets. Factories are granting prompt shipments to the distributors.

Soil Pipe

Little variation was reported in consumption of soil pipe for the past several weeks, according to jobbers interviewed. It was said that an increase in inquiries for future delivery commitments was experienced, but on the whole, jobbers in the Atlanta area are keeping their stocks in size sufficient to care for immediate requirements of the trade. No price change was announced and makers are shipping soil pipe promptly.

Pipe—Brass, Steel and Wrought Iron

Buying in brass, steel and wrought iron pipe was not heavy for the past two weeks, it is reported, and jobbers are keeping small but well assorted stocks on hand. Wrought iron and steel pipe continue to move at a fair rate, but brass pipe demand is light, it is reported. Prices are holding firm at the current published sheets, and no delays have been reported in securing pipe from manufacturers.

Fittings

Movement into consumption of cast iron, malleable and drainage fittings was reported to be only moderately good and most jobbers report only a slight increase in volume over the preceding two-week period. Jobbers have well assorted stocks on hand and are not coming into the market very strongly for future delivery orders at this time. There has been no change in the price situation since our last review and factories are shipping quickly.

Enameled Ware

Little change in enameled ware business was reported in this territory for the past fortnight. There is no large volume of construction work ready for finishing and the major portion of enameled ware business was in reinstallation work. Most jobbers interviewed are expecting a larger volume of work to develop in the next several weeks. No change in prices was reported and factory shipments are prompt.

Pottery

Jobbers have anticipated their requirements in pottery materials and hence factory placed orders were reported light for the past two weeks. Contractor requirements remained at about the same level. The consumption of pottery goods is reported to be below the level of a year ago at this time. Considerable estimating and figuring for future work is reported, but repair and reinstallation

The Stock Market

Range for Week Ending May 10, 1930†

Par Value	1930 High	1930 Low		*	Weekly High	Weekly Low	Weekly Close
NP	150⅜	118	Air Reduction Sales Co.	A	143⅝	130⅜	143⅜
NP	39¾	30⅛	American Rad. & Stand. San. Corp.	A	33¾	31	32⅝
25	100⅞	70½	American Rolling Mills Co.	A	76⅞	70½	74⅝
50	81½	52⅛	Anaconda Copper Mining Co.	A	60⅞	52⅛	60⅞
NP	46½	35	Bastian-Blessing Co.	C	39	35	39
NP	110¼	91⅝	Bethlehem Steel Co., Com.	A	96⅞	91⅝	96½
100	134	122¼	Bethlehem Steel Co., pfd.	A	131½	129½	131
NP	25⅞	14½	Brunswick-Balke-Collender Co.	A	20	17½	18½
NP	112⅜	70	A. M. Byers Co., com.	A & E	91¼	70	90⅛
100	114	109	A. M. Byers Co., pfd.	A & E	111	111	111
100	127⅛	118	Century Electric Co., com.	F	118	118	118
50	4¾	1	Chicago Nipple Mfg. Co., "A"	B	2¼	1	1
50	1½	1	Chicago Nipple Mfg. Co., "B"	B	1	1	1
25	44¼	42	Crane Co., com.	C	43	42	43
100	119½	113½	Crane Co., pfd.	C	117¼	116	116
20	21	11	Eagle-Picher Lead Co.	H	12⅛	11	11
NP	39¾	12	Fairbanks Co., pfd.	A	16	12	13¼
NP	48½	34½	Fairbanks, Morse & Co., com.	A	45½	42	45½
100	109½	105	Fairbanks, Morse & Co., pfd.	A	105	105	105
NP	20	12⅛	Greenfield Tap & Die Corp.	B	15¼	14	14
NP	26½	21½	Iron Fireman Mfg. Co.	C	24	22¾	24
NP	148⅝	98	Johns-Manville Corp., com.	A	111⅜	98	111⅜
100	123	118¼	Johns-Manville Corp., pfd.	A	120½	120	120
100	123½	118½	Jones & Laughlin, pfd.	A & E	122¼	121	121
NP	76¾	60	Minneapolis-Honeywell Reg. Co., com.	A	65	61	65
NP	73	48	Modine Mfg. Co.	B & C	70	58½	69
NP	34	26¼	Motor Wheel Corp.	A	28½	25⅞	28
NP	49½	38⅝	F. E. Myers & Bro. Co., com.	A	45	41⅛	43⅝
100	105	101½	F. E. Myers & Bro. Co., pfd.	G	104¾	104¾	104¾
100	189½	137	National Lead Co., com.	A	147	141¼	147
100	142	138½	National Lead Co., pfd. "A"	A	142	141	142
100	119	116	National Lead Co., pfd. "B"	A	118	117	17
NP	4½	1¾	National Radiator Corp., com.	A	2⅞	2¼	2¾
NP	11	4	National Radiator Corp., pfd.	A	6	6	6
5	31⅜	26	Herman Nelson Corp.	B	25½	25	25⅛
NP	76	73¾	Ohio Brass Co., "B"	B & G	73	73	73
NP	29	22	Revere Copper & Brass, Inc., com.	A	23	22	22
NP	72	61	Revere Copper & Brass, Inc., pfd. "A"	A	62½	61	62½
NP	3	2¾	Richmond Radiator Co., com.	B	3	3	3
NP	12	8	Richmond Radiator Co., pfd.	B	9¼	9⅛	9⅛
NP	33	31	Ruud Mfg. Co.	C	31	31	31
NP	36½	19⅞	Spang, Chalfant & Co., com.	A	27¾	25½	27
100	96	92	Spang, Chalfant & Co., pfd.	A	96	96	96
NP	32½	24	Time-O-Stat Controls Co., "A"	C	28	26	28
NP	106⅜	76	Union Carbide & Carbon Corp.	A	87¼	81	87¾
20	38¼	18½	U. S. Cast Iron P. & F. Co., com.	A	32	28½	31⅞
NP	19	15⅝	U. S. Cast Iron P. & F. Co., 1st pfd.	A	19	18⅜	19
NP	20	18½	U. S. Cast Iron P. & F. Co., 2nd pfd.	A	19	19	19
NP	55	42½	U. S. Radiator Corp., com.	B & D	53	51	52⅜
100	100	100	U. S. Radiator Corp., pfd.	D	100	100	100
NP	35	21⅛	U. S. Rubber Co., com.	A	29	25½	28⅞
100	63⅞	47	U. S. Rubber Co., pfd.	A	52¾	47	51½
100	198¾	165¾	U. S. Steel Corp., com.	A	175	165¾	172¾
100	146	144	U. S. Steel Corp., pfd.	A	145½	144¾	145¼
NP	9	2¾	Universal Pipe & Radiator Co.	A	6⅞	4½	6¾
NP	42⅞	26	Walworth Co.	A	35½	30⅛	33¾
NP	13¼	9	Wayne Co., com.	B & C	13¼	13¼	13¼
NP	33⅜	28	Wayne Co., pfd.	B & C	31¼	31	31¼
100	110	93	Wheeling Steel Corp., com.	B	110	108	110
100	135½	131½	Wheeling Steel Corp., pfd. "A"	B	133	133	133
NP	29¾	16	Williams Oil-O-Matic Htg. Corp.	C	16	16	16
NP	150¼	108	Youngstown Sheet & Tube Co.	A	125	125	125

*Where listed—
A—New York Stock Exchange C—Chicago Stock Exchange E—Pittsburgh Stock Exchange G—Cleveland Stock Exchange
B—New York Curb Exchange D—Detroit Stock Exchange F—St. Louis Stock Exchange H—Cincinnati Stock Exchange

†If there is no trading during the current week, range represents last week recorded.

work still constitutes the greater part of contractor activities. Deliveries from makers are prompt and prices are unchanged.

Plumbers' Brass Goods

Jobbers report a fair seasonal business in cast and tubular brass goods during the past fortnight, but considerable optimism prevails regarding an early resumption of normal business. Contractor requirements are light, with little new business developing. Wholesalers have ample stocks on hand to meet current demands of the trade. No price change has been announced by distributors.

Range Boilers

While activity in range boilers in the Atlanta area was reported light for the past two weeks, jobbers anticipate increased activity shortly owing to the considerable number of inquiries received regarding future delivery orders. Wholesalers have anticipated their current needs and factory orders were correspondingly moderate. No price change occurred since our last review and deliveries are promptly made.

Boilers and Radiators

Heating contractors are not well engaged at this time and heating materials are moving slowly, it was said. A considerable amount of new work is being figured, indicating a possibility of better conditions later on. Jobbers are maintaining small but ample stocks to care for the needs of the trade. No price revisions have been made and factories are shipping on schedule.

The Metal Market

	May 13	Average April, 1930	Average Feb., 1930	Average 1929
PIG IRON—				
No. 2 foundry, Chicago	$19.00	$19.40	$20.00	$20.00
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.70c	1.80c	1.85c	1.93c
* Blue annealed sheets, No. 13, Pittsburgh, per lb.	2.15c	2.25c	2.25c	2.17c
Black sheets, No. 24, Pittsburgh, per lb.	2.55c	2.65c	2.65c	2.85c
Galvanized sheets, No. 24, Pittsburgh, per lb.	3.30c	3.30c	3.30c	3.57c
TIN—				
Straits tin	31½c			
LEAD—				
Chicago	5.35c			

The Old Metal Market

Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	14½c	Copper, light	9 c
Block, tin	27¼c	Copper, uncrucibled wire	7¾c
Brass, light	5½c	Faucets and valves	6½c
Brass, heavy mixed	7 c	Lead, heavy	4¾c
Brass, red	8½c	Solder Joints	7¾c
Copper, crucible	11¾c		

NOTE: Prices are those quoted on Tuesday of this week.
* Comparisons are with old blue annealed base, No. 10.

PACIFIC COAST

Demand Is Moderate—

Coast business continues along moderate lines with little if any change noted during the past fortnight. Distributors generally have well balanced, though not heavy stocks of merchandise, and the trade's needs are being taken care of promptly. Distributors' prices to the trade vary in the different jobbing centers and during the past week distributors in some of the jobbing centers reduced their prices for out-of-stock delivery on enameled ware, pottery and soil pipe.

Soil Pipe

Little if any increased demand for this commodity is noticeable and it continues to move in moderate volume from jobbers' stocks; which are ample to take care of the trade's present needs without delay.

Pipe—Steel and Wrought Iron

A steady, although not heavy, demand for steel pipe continues; most orders being in small lots for immediate requirements. Distributors of this commodity have ample stocks and the trade's needs are being taken care of without delay. Distributors' prices to the trade remain unchanged. Wrought iron pipe is moving slowly with contractors purchasing only as the need arises. Deliveries to contractors are being made without delay. Prices at mills and at distributing points have not been changed and the market is reported firm.

Fittings

A moderate demand for fittings continues, which shows little if any change from week to week. Contractors are purchasing mostly in small lots for actual requirements as they arise, it is reported. Stocks in distributors' hands are ample to assure the trade prompt shipment of orders as received. During the past week most Coast distributors revised their list prices on malleable fittings and are quoting new discounts which, however, equal about the same net prices as were prevailing before.

Enameled Ware

Enameled ware is moving in about the same volume as has been maintained for the past month with little if any change apparent at this time, according to sources of information. The trade seems to be purchasing only such material as is required for immediate installation. Distributors have good stocks and can also secure prompt shipment from Coast manufacturers of all classes of ware as required.

Pottery

A moderate demand for this commodity continues, although, it is said, most orders received are for small lots for immediate shipment and little if any forward buying is being done. Distributors generally have ample stocks and Coast potteries can also make prompt shipment of all classes of ware.

Plumbers' Brass Goods

A steady demand for this commodity continues which most distributors are able to take care of from well-balanced stocks. Distributors' prices to the trade vary in the different jobbing centers and are generally reflecting replacement costs.

Range Boilers

The demand for range boilers continues to be of a moderate volume, hardly varying from week to week. Distributors are carrying sufficient stocks to insure prompt delivery of all orders received.

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The Wholesalers Future

To properly serve manufacturers, a wholesaler should carry a well-balanced stock of sufficient quantities to enable him to fill from stock all reasonable orders. When a wholesaler buys from hand to mouth and then asks his sources of supply to ship stock merchandise direct to the contractor, he defeats the purpose for which he engaged in business. By forcing upon manufacturers the function of warehousing, he is virtually forcing them to reduce their differential to him.

* From Bulletin of Central Supply Association.

Where to Look for Business

BUILDING figures tell the plumbing, heating and ventilating industry where to look for their business.

It is reasonable to assume that their biggest market, generally speaking, is in that class of construction which leads in dollar volume, for plumbing, heating and ventilating each take their share of the building dollar and the more dollars from which to take their share, the more plumbing, heating and ventilating. In other words, this being true, the residential field compares with the commercial field as a market for these mechanical services as the amount of money spent for building in each field compares. Similarly, the industrial field compares with the commercial field, and the educational field compares with the industrial field as the value of construction in each compares with the value of construction in the other.

This should be modified in the case of products and services whose applications are not suitable in one or more of the classes of construction or whose applications in certain types of buildings are not so costly as they are in others. In such event it is necessary to segregate those classes which do represent markets and compare them on their dollar volume. But, generally speaking, as the building dollar goes so go plumbing, heating and ventilating.

BUILDING—1925 TO 1929, INCLUSIVE

	RESIDENTIAL[1]		COMMERCIAL[2]		INDUSTRIAL[3]		EDUCATIONAL[4]		ALL OTHER CLASSES[5]		TOTAL (Millions of Dollars)
YEAR	Value (Millions of Dollars)	Per Cent of Total	Value (Millions of Dollars)	Per Cent of Total	Value (Millions of Dollars)	Per Cent of Total	Value (Millions of Dollars)	Per Cent of Total	Value (Millions of Dollars)	Per Cent of Total	100%
1925	$ 2,748	54%	$ 872	17%	$ 491	10%	$ 426	8%	$ 568	11%	$ 5,105
1926	2,674	51	903	17	673	13	381	7	596	12	5,227
1927	2,573	51	933	19	494	10	380	8	659	12	5,039
1928	2,794	53	885	17	635	12	399	8	583	10	5,296
1929	1,916	43	933	21	756	17	382	8	519	11	4,506
5-Yr. Total	$12,705	50%	$4,526	18%	$3,049	12%	$1,968	8%	$2,925	12%	$25,173

[1]Includes dwellings; apartments; hotels; etc. [2]Includes office buildings; banks; garages; stores; etc. [3]Includes factories and industrial plants; heating and power plants. [4]Includes schools and colleges; libraries; museums; etc. [5]Includes hospitals; clubs; community and memorial buildings; churches; public buildings; theaters; welfare; etc.

It is interesting, on this basis, to study the building figures of the last five years, as compiled by F. W. Dodge Corporation in the 37 eastern states, and to analyze the percentage of the total for which each class of construction has accounted. The accompanying table presents such an analysis for each of the five years and for the total.

It will be noted that residential buildings have averaged 50 per cent of the total construction volume from 1925 to 1929 inclusive; that commercial buildings have averaged 18 per cent; industrial buildings 12 per cent; educational buildings 8 per cent; and all other classes 12 per cent.

Any forecast of the story that 1930 will tell can hardly differ to any great extent. The uniformity of the percentages in which these various classes of construction have held up for five years establishes a trend on which it would seem our industries could rely.

With the completion of the first quarter of 1930, plumbing, heating and ventilating are looking to the balance of the year for a profitable volume of business. It being true that "as the building dollar goes so go plumbing, heating and ventilating," the realization of this volume is unquestionably linked with a marketing and merchandising program which is in line with the building trend.

Delaware Valley Trade Golfers Elect New Officers

The Delaware Valley Trade Golf Association of Philadelphia, Pa., inaugurated the 1930 season with a dinner and business meeting at the Manufacturers' club in that city, on April 28. Claude Owen of Washington, D. C. was elected president, C. W. Wanger of Philadelphia, first vice president and Frank Wilson, Philadelphia, second vice president. Herman J. Kleinman was re-elected secretary and treasurer and Chris Weber was elected captain. Frank Newton and Russell D. Knight were appointed as a committee to obtain a suitable gift for the retiring president of the golf association, A. A. Tomlinson.

A tentative schedule of golfing dates for the season was drawn up. The association will open the season at the Seaview Country club, Absecon, N. J. on May 23. The June meet will be held at the Trenton Country club. The Concord Country club was tentatively chosen for July, Lulu Country club for August, Manufacturers' Country club for September and a tentative arrangement to play at one of the courses in Washington, D. C., district some time during the season.

Western New York Trade Golfers Elect Officers

A pre-season meeting of the Western New York Trade Golf Association was held at the Pickwick Arms hotel, Fort Erie, Canada, on April 25, for the purpose of electing officers and formulating plans for the coming golf seasons.

The meeting was well attended and some interesting plans were made for conducting the affairs of the association. The following officers were elected: L. N. Castin, president; D. J. Mahoney, vice president; Walter Voisinet, treasurer, and W. E. Spencer, secretary. Walter Johnson and Park Hedley will sit in with the officers on the meetings of the board of directors.

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Lincoln Electric Co. Announces Transfers

The Lincoln Electric Company, Cleveland, Ohio, has announced the transfer of three men from the manufacturing district to the welder service division, as follows:

John C. Ardagh to the Chicago district, with headquarters in the Monadnock building, Chicago, Ill.

R. A. Kyle to the New York district, with headquarters at 136 Liberty street, New York, N. Y.

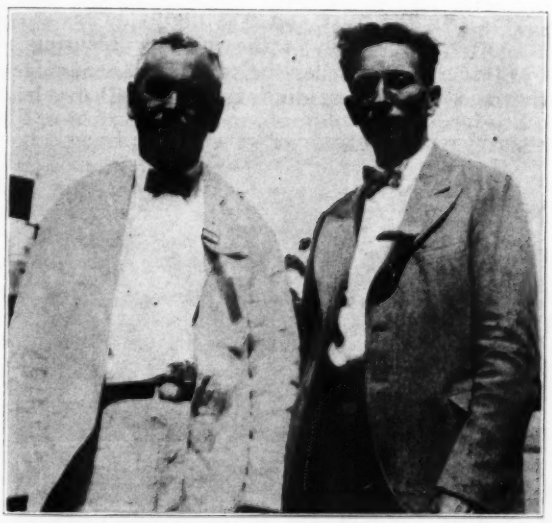
Robert Newton to the Cleveland district, with headquarters at the factory, Cleveland, Ohio.

Florida Association to Appoint Field Secretary

Votes to join Florida Industrial Council; hears National Director Dosher, and address on business practice

Harry Pepper of Jacksonville, new state president

MEMBERS of the Florida State Association of Master Plumbers and Heating Dealers, Inc., gathered at Bradenton on May 5 and 6 for the ninth annual convention of the organization, headquarters for the convention being at the Dixie Grande hotel. Numbered among those present were many women, delegates to the sixth annual convention of the Florida Women's Auxiliary.



Lee Phillips, state vice president, and C. B. Perkins, retiring state president, both of Lakeland

Following some discussion on the subject, a resolution was adopted by the association to underwrite $50 a month for six months for the employment of a field secretary for that period of time. In another resolution it was voted to join the Florida Industrial Council.

Harry Pepper of Jacksonville, vice president of the association during the past year, was elevated to the office of president of the state organization. Lee Phillips of Lakeland was elected vice president and Robert Engstrom of Jacksonville, was re-elected treasurer. It was voted to hold next year's convention at West Palm Beach.

The Opening Session

The convention was called to order on Monday morning at the Municipal Pier building, with both the men and women in attendance. Henry Griggs, president of the Bradenton local association, opened the meeting and welcomed the visitors to the city.

C. B. Perkins of Lakeland, president of the state association, lead the gathering in the singing of "America," and introduced Wilbur R. Dosher of Wilmington, N. C., a director of the National Association of Master Plumbers. Mr. Dosher spoke briefly at this time, charging many master plumbers with being too lax in their business operations. He referred to the women's auxiliaries and to the splendid work they have done all over the country. Mr. Dosher said he felt that the forward strides made by the master plumbers would have been impossible in many cases without the assistance of the women.

C. F. Armstrong, master plumber of Bradenton, was also on the program for the opening session, expressing his pleasure in having the convention in that city.

Fred M. Quinlan of St. Petersburg, a member of the educational committee of the National association, spoke at the opening session and told something of the accomplishments of the committee which he represented. He stressed the importance of quality workmanship. He urged his listeners to always justify the prices they charge for a job, pointing out that such a policy would prevent disappointment on

the part of the customer and would also eliminate much criticism.

Mrs. W. E. McAndrew of Tampa, president of the Women's Auxiliary to the National Association of Master Plumbers, brought a message of courage and hope to the body. Mrs. McAndrew was introduced by National Director Dosher, who complimented her very highly, saying that she has merited the confidence and esteem of every member of the association. Mrs. McAndrew discussed the beneficial results of conventions and pointed with pride to the growth of the organization which she has headed during the past year.

Mrs. Foster R. Fanning of Winter Park, recording secretary of the National auxiliary, voiced a plea for co-operation in all matters undertaken. Like Mrs. McAndrew, she was heard with close attention and warmly applauded. Mrs. Frank Williams, corresponding secretary of the national auxiliary of Tampa also addressed the meeting on the activities of the auxiliary. Mrs. J. P. Simpson of Fort Lauderdale, president of

Top row: Harry Pepper, new state president; Mrs. Pepper and Harry Pepper, Jr.; Mrs. and Mr. Charles Koegel, Mrs. and Mr. D. A. Mayfield, all of Jacksonville. Bottom row: C. V. Simpson of Gainesville, Robert Engstrom of Jackksonville, Mr. Pitt of American Brass Co.

the state auxiliary, was unable to attend because of illness, her place on the program being ably filled by Mrs. V. C. Grant of Daytona Beach.

State Officers Report

President Perkins submitted a complete report of the activities and accomplishment of the association during his administration. He expressed his pleasure at having had the opportunity to serve the state association as president. President Perkins paid especial tribute to the state auxiliary for the assistance it has been to the Florida State Associa-

Wilbur R. Dosher, National Director

tion of Master Plumbers and Heating Dealers, and he also expressed his appreciation to the trade papers for their help during his term of office. Vice President Pepper had also prepared a report on his activities during the year, which he read to the delegates.

J. A. Mann of Winter Haven, central district vice president, reported for the year, as did Frank Williams of Tampa, vice president of the southwest district.

The report of Treasurer Robert Engstrom showed that the state association was in sound financial condition.

Fred M. Quinlan addressed the convention on general business practices. He pointed out that because a man operated a small shop with little overhead was no reason why he should be satisfied with a small profit on a job. Mr. Quinlan talked at some length on trade practice rules and was highly in favor of the contracting branch of the industry securing a set of trade practice rules the same as the manufacturing and wholesaling division of the industry had

Top row: F. P. Moss, Mrs. and Mr. Louis Gegen, Phillip Levy, Mrs. Roy Martin and J. A. Quinn, all of Miami. Bottom row: J. D. Green of Sarasota, S. H. Klemetsrude of Bradenton, F. E. Cummins of Plant City, J. G. Gillum and E. M. Watts, both of Lakeland, D. B. Whittle of Palmetto

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And what preparations are you making toward meeting the inevitable changes when the "dawn of the gas age" breaks into broad light?

Will your clients beyond the gas mains, faced with the problem of obtaining an adequate gas supply, disregard you as the logical source in such situations and go elsewhere? Will the inevitable acceptance of only gas fired apparatus by your clients begin to limit your business revenue? Why not give them real gas service—and install automatic gas appliances—and establish yourself in your community as the logical source for gas service?

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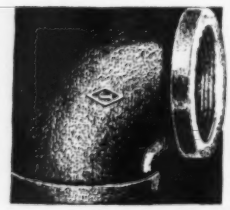

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To assure you the highest quality Fittings, Jarecki maintains the closest possible supervision over its foundries. It backs this up with as thorough an inspection system as has been devised.

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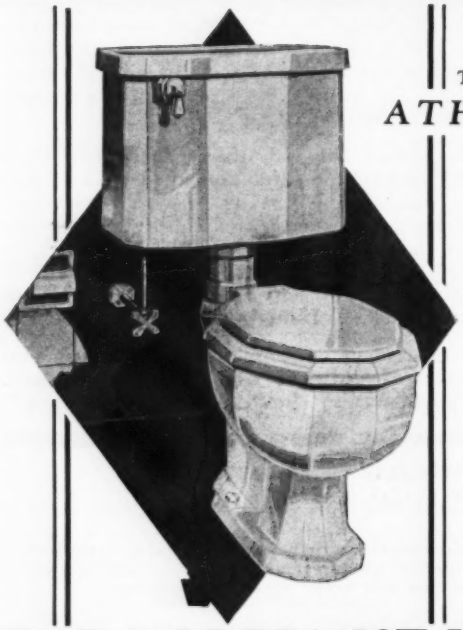

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Left to right: W. W. Durnall of Lakeland, F. E. Cummins of Plant City, F. C. Des Rochers of Ft. Myers and "Happy" Grant of Sarasota

done. The speaker pointed to the smaller volume of new construction underway in the state of Florida and practically all over the country, and said that this made it imperative for the master plumber to secure a good profit on his work.

Hear National Director Dosher

National Director Wilbur R. Dosher, who was the official representative of the National association at the convention, brought the greetings of that body to the state association and explained in considerable detail the accomplishments of the National association during the past year. He told of the work being done by the various standing committees and of the other ways in which the national was working for the benefit of the master plumbers of the United States.

Mr. Dosher also referred at some length to the plans for the forthcoming National convention and urged a large attendance of Florida representatives. He explained that a boat has been chartered to carry the delegates from Philadelphia, Pa., to Boston, and invited all those who wished to travel to the convention by that route to do so. In closing Mr. Dosher touched on the necessity of maintaining as large a volume as possible under the curtailed construction program, adding that in his experience aggressive merchandising was one way of accomplishing this end. He urged his hearers to give more attention to this phase of the business.

O. B. Mueller, president of Mueller Brass Co., Port Huron, Mich., made an interesting address on the history of sanitation, which was well received by the delegates. Mr. Mueller stressed the importance of the plumber as a protector of the public health, and outlined the advances that have been made in sanitation in late years.

On Tuesday afternoon the delegates visited the major points of interest in the city and surrounding country. That evening the banquet supper was served at the Dixie Grande hotel, followed by a dance at the municipal pier.

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Schenectady Association Elects Officers

The Associated Master Plumbers of Schenectady, N. Y., recently re-elected Frank J. Lapier as president for another year; Thomas J. Sims was chosen as vice president; William D. Atkins, secretary; and Frank V. DeForest, treasurer.

Group picture taken at annual convention of Arizona State Association of Master Plumbers

Arizona Moves to Secure State Code

C. J. Harrington of Phoenix re-elected president; C. W. Gould of Tucson elected vice president; membership drive is planned

STAUNCH support to the passage of a proposed minimum state plumbing code and co-operation with wholesalers in the placing of plumbing and heating goods in consumption through established channels was pledged in resolution by the Arizona State Association of Master Plumbers, assembled for its annual convention, at Tucson, May 4.

It was pointed out at the meeting by J. F. Jennings, state representative and sanitary inspector for Maricopa county, sole county employing such an operator, that the passage of the code would require much hard work. Mr. Jennings championed the code bill in the past session of the state legislature, but was unable to move it out of the house for passage. Realizing that the association now has an opportunity to improve plumbing conditions within the state, the organization pledged its united support to securing passage of the code.

Every town in the state having state association membership was represented at the meeting, which was held at the Santa Rita hotel. Practically the entire association membership of 48 persons was present.

The Election of Officers

C. J. Harrington of Phoenix was re-elected president of the state body, and his assistant officers were selected as follows: C. W. Gould of Tucson, first vice president; L. S. Palmer of Douglas, re-elected second vice president; George G. Doyle, Jr., of Phoenix, re-elected secretary; W. A. Thompson of Phoenix, treasurer. The president and first vice president were named delegates to the national convention, to be held at Boston, Mass.

Phoenix was selected as the 1931 convention city, the date to be May 2 and 3.

The state dues were doubled by the association, the membership cost being increased from $15 to $30. The greater number of delegates favored the move after it was pointed out that necessary operation funds could be derived only through higher assessment for the small membership.

Director Swinnerton Urges Larger Membership

A plan in intense organization to enlist membership of every master plumber in the state was projected by the association after the need of such was thoroughly gone into by Charles M. Swinnerton of Los Angeles, Cal., a director of the National Association of Master Plumbers. Mr. Swinnerton carried deliberations of the National association before the meeting. He called for loyalty of local and state members to the National association and urged the state association to support the move for a state plumbing code.

Talks on Sanitation and Code

The association was offered full co-operation towards promotion of the state plumbing code by George Wilson, Maricopa county attorney, and his assistant, Benton Dick, who spoke before the convention on the need in Arizona for legislation and co-operation in connection with sanitation. The state code as projected will embody the establishment of a full health unit in each county in the state, which unit will comprise a county health physician devoting his entire time to county patients and

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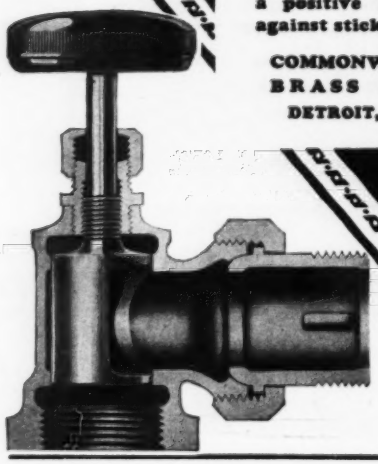

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matters of sanitation, with assistance of his corps of nurses and other needed assistants.

Sanitation and means to its advancement as a health protector was sounded as a keynote for the morning session of the meeting, and the program included Dr. R. J. Stroud of Phoenix, state health officer; Miss Jane Rider, director of the state laboratory at the University of Arizona at Tucson; Richard Bennett, superintendent of the city water department, Tucson; the Maricopa county attorneys, and Inspector Jennings.

Miss Rider outlined a report of the rural sanitation committee of the American Public Health Association on the financing of home sanitary facilities on the time payment plan, as a prime move in merchandising today by the merchant plumber. Miss Rider directed the plan as wholly feasible in accordance with a survey made which included reports from 30 states.

John J. Cahill of Phoenix, a past president of the Illinois state association, made an instructive address on the importance of every master plumber knowing his costs.

Delegates to the meeting were welcomed by Frank Cordis, former mayor and councilman of Tucson, who officiated for Mayor W. A. Julian. Response was given by D. S. Horrall of Phoenix.

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Wisconsin Chapter Holds Interesting Meeting

The Wisconsin Chapter, American Society of Heating and Ventilating Engineers, held its regular monthly meeting on March 23 at the Milwaukee Elks Club. President F. Weimer presided and there were twenty-six members and guests present. Professor C. L. Larson, who was to talk on the proposed revision of the society boiler code, was unable to be present, and his place on the program was filled by E. A. Jones of the L. J. Mueller Furnace Co., a member of the society. Mr. Jones pointed out that the present code gives only a maximum rating under certain fixed conditions, but does not give complete boiler selection information.

Under the proposed revision, he said, it will be possible to select a proper boiler for the job by means of published performance charts of the boilers under different operating conditions. The proposed revisions are something the Heating and Piping Contractors always wanted and the clause which provides that the boiler manufacturer shall guarantee the performance charts should tend toward more accurate boiler ratings, the speaker said. Mr. Jones said he believed the time will come when the A. S. H. V. E. laboratory will test and rate all boilers as the A. G. A. laboratory is now doing with gas fired boilers.

C. V. Haynes, a prominent member of the society, also addressed the meeting. He told something of the growth of the organization, which now has more than 2,000 active members, and referred to the recent exposition in Philadelphia. He said a similar exposition will be held in Cleveland, Ohio, in 1931. The speaker also touched on the society guide, telling something of its history. He feels that the trade practice rules and the Institute of Boiler and Radiator Manufacturers have already and will continue

to do much in improving conditions in the heating and ventilating industry.

He read the new steel heating boiler code, explained that the steel boiler manufacturers were not in full accord with the proposed revisions, and asked that steel boilers be omitted from the code. This was turned down by the committee, as the present steel boiler code does not provide any guarantee. A vote was taken and it was unanimously carried that the proposed revision be adopted.

Obituary

W. C. Kerwin

William C. Kerwin, master plumber of Joplin, Mo., died recently at his home, 1730 Annie Baxter avenue, in that city, after an illness of only two days. Death was due to heart disease. Mr. Kerwin was in his 52nd year and had been a resident of Joplin all his life. Mr. Kerwin first entered the plumbing business as an apprentice, serving in this capacity for three years. He then embarked upon a career of his own as a partner in the firm of Kerwin & Burgess. Later he took over the business himself and for the last eighteen years operated it as the W. C. Kerwin Plumbing Co.

W. C. Kerwin

Mr. Kerwin was widely known throughout the industry and was a very active member of the Missouri State Association of Master Plumbers. He was president of the Joplin association and was one of those responsible for bringing the state convention to that city two years ago. He is survived by his widow, two small sons, his mother and a sister.

Howard F. Ritte

Howard F. Ritte, a master plumber of Baltimore, Md., died suddenly of heart trouble at his home in that city, on April 12. Mr. Ritte was in his 56th year, and had spent his entire life in Baltimore, where he had been a master plumber for 27 years. He is survived by his widow and one son, who will carry on his father's business.

G. H. Morris

G. H. Morris, past senior president of the Heating and Piping Contractors New York City Association, died April 18 at his home in South Orange, N. J. Born in Brooklyn, N. Y., in 1853, Mr. Morris was reared by his grandfather, who was the first mayor of Brooklyn when it was made a city. He retired from business in 1924, having been one of the firm of Johnson and Morris, one of the oldest heating firms in New York City.

Mr. Morris was one of the seven men who organized the Building Trades Employers Association of New York City in 1903, which has grown to a membership of some 1,200 firms. During his many years of activity he did much for the heating and piping industry and was a

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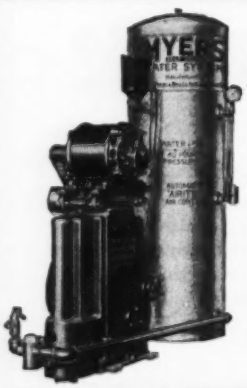

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member of the Heating and Piping Contractors National Association from the time of the organization of that association.

Mr. Morris is survived by his wife, a son and a daughter. Funeral services were held in Grace Protestant Episcopal church, Orange, on April 21, and interment was in Greenwood cemetery, Brooklyn. The honorary pall bearers were: John R. Alpine, Samuel B. Donnelly, Henry B. Gombers, Sidney S. Huxham, Robert B. Miller, Christian G. Norman, John E. Rutzler, H. Richard Stern, James H. Strong, and Robert D. Williams.

Albert J. Wussow

Albert J. Wussow, heating contractor at Milwaukee, Wis., for more than 20 years, died April 15 at his home in that city. Death was caused by internal injuries, suffered when Mr. Wussow fell in the bathroom of his home two weeks before. He was in his 69th year. Mr. Wussow conducted his business office from his home, 817 Forty-first street. He was born in Germany and came to Milwaukee about 40 years ago.

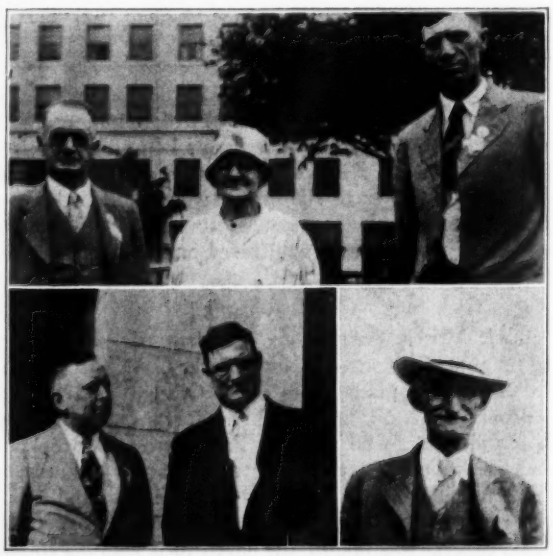
Survivors include his wife, four sons, and three daughters.

David Bluestein

David Bluestein, a master plumber of Indianapolis, Ind., died recently in that city. Mr. Bluestein was a member of the Indianapolis Merchant Plumbers Association. Burial was at Buffalo, N. Y., which was his former home.

John M. Shackleford

John M. Shackleford, a salesman for Crane Co., Chicago, died at his home in Deland, Fla., on April 14. Mr. Shackleford was well known in the Florida territory, where he had many friends. The Women's Auxiliary to the Daytona Beach Master Plumbers Association adopted a resolution of condolence upon the death of Mr. Shackleford.



Top row: Mr. and Mrs. C. W. Richmond of McAllen, Frank Dawson of Mercedes. Bottom row: H. B. Paggi of Port Arthur, A. J. Coburn of Beaumont, and S. B. Wells of Quanah. Photos taken at the convention of the Associated Master Plumbers of Texas

Trade Practice Rules and the Contractor

By F. W. SWANSON, Commissioner of the National Plumbing and Heating Institute

F. W. SWANSON, commissioner of the National Plumbing and Heating Institute, recently addressed a gathering of master plumbers in Southern California on the subject of trade practice rules and the contractor. The first part of Mr. Swanson's address were published in a recent issue of DOMESTIC ENGINEERING. The following excerpts from his address conclude the report on this meeting:

Rule 8—Price discrimination—cartage.

This rule is an expression of the industry against local cartage discrimination.

Surely there should be no discrimination in cartage allowances, and the benefit derived by the bona fide plumbing and heating contractor from the observance of this rule by the wholesaler can easily be seen.

Many times has the wholesaler assumed a delivery cost for a few contractors not assumed by him for all contractors, and surely all contractors are entitled to either pay the same cartage services at the same price, or to have the same service furnished by the wholesaler free to all alike.

Cartage is one item in the cost of doing business and should not become an agency for price discrimination.

Rule 9—Lump sum bidding, which does not show unit prices.

This is a sinister practice. It has been a very costly practice to those who have practiced it, and is unfair to manufacturers, wholesalers and contractors and the public alike. The practice of lump sum bidding has every tendency to encourage substitution of materials, secret rebates, price discrimination, and sales below cost. It may as well be used by manufacturers of more than one line and by wholesalers to force the purchase of all items included in the quotations, even though not the desire or in the interest of the buyer or the public. It is as essential for the contractor to maintain his freedom of purchase as it is for the wholesaler, and as it is for the public.

There should be no coercion in selling.

Lump sum bidding can develop into downright fraud and deceit, as well as into an instrument which prevents freedom of action. It can also develop into the greatest demoralizing agent against fair competition and lawful co-operation.

The contracting branch of the industry should, therefore, support the efforts of the honest manufacturer and of the honest wholesaler for free, open, and fair competition in bidding, and refuse to receive a lump sum bid unless unit prices are shown, making possible proper unit deductions when not purchased and used.

Rule 12—Quotations.

It is obvious that the allowance of quotations to remain in effect after the date of acceptance, without making a fair and equitable adjustment in price in the event of general decline or general advance of the market, is an unsound method of business and can only be practiced and enjoyed with an intent to deceive and secure an advantage.

The purpose of such practice is to place some one contractor in a more favorable position with reference to bids than another.

It has the same demoralizing effect upon business and the industry as do all other trade practices which are based upon deception and fraud.

It encourages advantages which are not worth while. Advantages which at the most could be for only a small percentage of a total year's business, but advantages which might destroy the stability of a fair profit on perhaps the large percentage of the whole year's business.

Volume as a whole, not in part, must be thought of if men in our industry are to prosper. Rule 12 attempts to secure standards in quotations, which will treat all alike, with advantage to none.

So much then for the explanation and application of our Trade Practice Rules and the assistance they will give to the plumbing and heating contractor to improve his business.

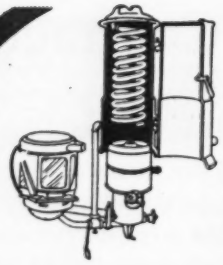
After all, we need stabilization in our industry as it is needed in all other industries.

The trade practice rules of the manufacturing and wholesale divisions of this industry have now been signed by over 1,600 manufacturers and wholesalers.

As I prefer to believe in my fellow men, I believe in almost every signer there is a sincere purpose to observe what he has contracted with his competitors that he will observe, though one and all we must always be alert to encourage and secure observance.

Many a wholesaler the past few months has seen his secret rebates, his secret preferentials, and his price discriminations taken away from him, but instead of resisting as in times past, he has willingly co-operated, realizing that only through the stability of his manufacturer's

"There is nothing in stability of markets that eliminates free and aggressive competition. Stability of markets, uniformity in trade practices and fair rules in the game of business, to the contrary, will permit free, aggressive competition through the elimination of unlimited license against both private and public interests."—*F. W. Swanson.*



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market will he have stability in his wholesaling market.

Plumbing and heating contractors have realized that this same principle applies to them. If they expect stability in their market, they must insist upon stability of the wholesaler's market, exactly as the wholesaler is insisting upon stability of the producer's market.

There is nothing in stability of markets that eliminates free and aggressive competition. Stability of markets, uniformity in trade practices and fair rules in the game of business to the contrary will permit free aggressive competition through the elimination of unlimited license against both private and public interests.

Stability of markets will accomplish for our industry what stability in the purchasing power of the dollar the past seven years has accomplished for general business prosperity, such as some have enjoyed. At no time in the history of the world has there been such stabilization of the dollar as there has been the past seven years.

The trade practice rules that we have been discussing will do much to stabilize the dollar of the plumbing and heating industry on a steadier and more profitable basis for manufacturer, wholesaler and contractor.

Gentlemen, like other American business men we are organized up and down the land for the purpose of assisting the little places of business we call our own, and of assisting the sum total of them all—our industry, from the destructive practices that constantly seek to tear down.

We are organized because our own organization can accomplish what the individuals cannot accomplish alone.

If this be so, let us support, not only as individuals, but as organizations, the really remarkable beginning that has been made for fair, open, above-board standards of trade practices. Let us work together and co-operate together in the observance of those things that are equitable, that are common sense, that are decent, and that are economically sound.

Let us not be men in business who are throw-backs to the middle ages—every man for himself—but through the restoration of confidence in each other let us be builders of a better business for our Industry.

Let us guard as our very own any fair trade practice movement, no matter from whence it comes, and let us make an outcast from our associations and from our industry, of the man, be he manufacturer, wholesaler, or contractor, who would tear down the structure that will give us all the like chance for fair competition in an open market—a market stabilized as to the rules of the game; rules adopted by the will of the industry; rules of self-regulation within the industry; rules approved by a commission of the government charged to encourage fair competition by the prevention of unfair competition.

The three legs of our stool, each equally important, are all three, manufacturer, wholesaler, and contractor, interested and benefited by the new ideal of service and ability in fair competition rather than the discarded idea of deceit, fraud, and unfair advantage in unfair competition.

◆

Wichita Association Elects Officers

The Wichita Master Plumbers Association has elected the following members as officers for the ensuing year: R. P. Johnson, president; C. B. Bennett, vice president; O. C. Robertson, secretary-treasurer.

Salt Lake City Masters Discuss Costs

The advisability of making a "shop on wheels" service charge of twenty-five cents per job or per hour, was discussed by members of the Salt Lake City (Utah) Association of Sanitary and Heating Engineers at the regular semi-monthly meeting held recently in the association suite in the Hooper building.

Among the reasons pointed out by certain members for adding this charge were: the master has an investment in each truck of ordinarily fifteen hundred to three thousand dollars, by the time it is fully equipped, and it is necessary to make some charge to cover depreciation and interest on the investment.

The second reason is that the public has to pay a considerably smaller charge for repair work when the "shop on wheels" is used, as it eliminates trips back to the shop for materials and also does away with the journeyman riding the street car.

Parley G. James, past president of the organization, urged the members to learn their costs, declaring that the masters were largely to blame for the extent to which the average buyer shops before purchasing plumbing goods, as the retail price of the same goods varied from 50 to 100 per cent in different establishments and the buyer received a substantially different price at each different place that he inquired; the net result being that he finally purchased the goods at a store that was selling them at cost.

President George M. Whitely presided at the meeting which was attended by the representatives of eighteen firms.

◆

Connecticut Masters End Bowling Season

A banquet and dance held on April 12 at the Hotel Taft, New Haven, Conn., closed the second season of the Connecticut Master Plumbers' Bowling League, which includes teams of seven men each from Meriden, New Britain, Wallingford, Middletown, Waterbury, Bridgeport, C. S. Mersick & Co. of New Haven, and one composed of jobbers' salesmen.

All of the officers of the Connecticut State Master Plumbers' Association were in attendance, as were some 175 master plumbers, their wives and guests. Howard F. Bryant of Bridgeport, past state president, was toastmaster.

The teams of the league compete each year for two trophies, one donated by State President A. A. Mills of New Britain, whose cup goes to the winning team of master plumbers, and the other by Brunswick-Balke-Collender Co. of Chicago, which is awarded to any team. The prizes are to become the permanent possession of a team winning three years, consecutively. The Mills trophy was won last year by the Meriden team, and the C. S. Mersick & Co. team won the Brunswick-Balke-Collender Co. trophy, but this year in a tie play off Bridgeport defeated the Mersick team and, as a consequence, holds both cups for the year. Henry J. Foell, captain of the Meriden team, surrendered the Mills trophy to Wilbur J. Wade, captain of the 1930 champions, as did J. Groard, captain of the Mersick team, in the instance of the other cup.

The schedule calls for three games every Monday or Tuesday night for fourteen weeks and the teams are paired in rotation, meeting in the various cities represented in the circuit. Traveling a maximum of fifty miles each way, no team has missed a night of play. Approximately fifty individual prizes were given out to the various team members. Joseph Berger of Bridgeport and K. P. Provost of New Haven conducted these presentations, making appropriate remarks to each of the recipients.

◆

Belle Monti Club Host to P. and H. Club Golfers

Members of the golfing section of the Plumbing and Heating Club of San Francisco shot a better than average game, taking the scores as a whole, when they unlimbered their sticks at the Belle Monti Golf and Country club at Belmont, 23 miles south of the city, on the afternoon of April 23. This was the fifty-fourth monthly get-together, with attendance and weather conditions all that could be desired by anyone.

President Young again tucked the A-class trophy under his belt; and he earned it—he cracked 80.

Top row: E. K. Ross, Martin Doerr, Walter Seitz and Lee Jones. Bottom row: G. D. Martin, M. S. Greenberg, L. R. Penhallagon and Clarence Drucker

J. J. McLeod took B-class honors with his net 69; also, Mr. McLeod received congratulations on his admittance to the hole-in-one club, which fame was achieved at Ingleside a month ago. Walter Mead shot a net 65 in the C division, thereby winning a cup, as did C. F. Ceasar in D-class with a net 59. Both Mr. Mead and Mr. Ceasar, as well as Frank Mosher and Walter Judson, did some good work with their drivers. A high order of putting was done by B. R. Blackburn, C. W. Higgins and W. A. Rowe. There were plenty of birdies, J. V. Young securing two, and one each going to H. P. Wilson and C. J. McCarthy.

The course at Belle Monti is in no sense an easy one, the long uphill work to the fifth hole being a stiff test for any golfer. Several members played

only nine holes; the scores of those making the entire round were:

Name	G.	H.	N.	Name	G.	H.	N.
Wilson	86	17	69	Young	79	12	67
Mead	91	26	65	Ross	111	29	82
McLeod	89	20	69	Drucker	118	37	81
Somerton	109	28	81	Penhallagon	94	16	78
Heymans	104	27	77	Browning	102	33	69
McCarthy	94	22	72	Allmon	91	19	72
Fleming	95	19	76	Blackburn	115	G.	115
Mosher	106	37	69	Ceasar	94	35	59
Rowe	94	18	76	Frazer	94	17	77
Oelschlagel	102	22	80	Higgins	114	28	86
Rainwater	96	27	69	Jones	115	G.	115
Forsythe	105	28	77	Greenberg	95	21	74
Judson	95	31	64				

◆

Maryland Association Holds Annual Dinner Dance

The Association of Master Plumbers of the State of Maryland, Inc., held its 48th annual dinner dance on April 22, at the Lord Baltimore hotel, in Baltimore. More than 500 people were present, this being the largest attendance yet had by the association at such a function.

Gustav Wirth, chairman of the entertainment committee, introduced the speakers, which included the mayor of Baltimore, William F. Broening; State's Attorney Herbert R. O'Connor, and the assistant commissioner of health, Dr. J. Frederick Hempel.

After dinner the entertainment consisted of vocal and violin selections by several radio stars, as well as several Spanish and Mexican dancing exhibitions. Later an orchestra furnished dance music.

Others present were Chief Plumbing Inspector George J. Fitch of Baltimore, and his assistant, Carroll H. Reynolds; A. R. McGonegal, Chief Plumbing Inspector of Washington, D. C., and a number of members of the Washington, D. C., association.

◆

Alberta Association Meets at Edmonton

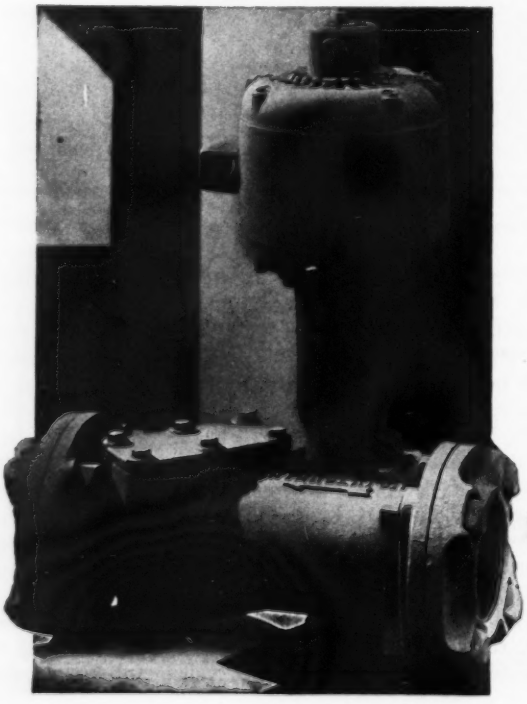
A record attendance featured the two-day convention of the Alberta Association of Domestic, Sanitary and Heating Engineers, held at the MacDonald hotel, Edmonton, Alberta, Canada. In addition to the members, a large number of delegates representing manufacturers attended. The sequence of events was well planned, delegates being met and welcomed by Mayor James Douglas of Edmonton, who also formally opened the meeting. The first part of the morning session was devoted to general business and at noon the gathering was the guest of the Edmonton Rotary club. John C. Davis, western manager of Grinnell Co., Ltd., and Robert McQuarrie, Edmonton, were the principal speakers at the afternoon session.

Frederick Hicks, of Lethbridge, Alberta, was elected president for the ensuing year while Joseph Marsh of Medicine Hat was named vice-president.

◆

La Crosse Association Elects Officers

The La Crosse Retail Plumbers' Association of La Crosse, Wis., has elected the following officers: Otto W. Ratz, president; George Kienholtz, vice president; A. E. Niebuhr, secretary; and William Woehlke, treasurer.



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Milwaukee Contractors Join in Forming Credit Bureau

The Heating and Piping Contractors Milwaukee Association, and the Milwaukee Master Plumbers Association are among the representatives of twenty-five trade organizations in the construction industry in the city of Milwaukee who met recently and approved articles of incorporation and by-laws for the operation of a Construction Industry Credit Bureau. The organization when completed will take care of all matters of interest to the construction industry having to do with loose credit.

Directors are to be elected representing each group in the industry, who in turn will elect officers and five other directors to act as an executive committee. The executive committee will control the operation of the board.

◆

Glendale-Eagle Rock Association Appoints Business Manager

The Glendale-Eagle Rock (Calif.) Master Plumbers Association has appointed John R. Denning business manager of the organization. Mr. Denning has had a wide experience in the plumbing and heating trade. Prior to assuming his new duties he was southern California representative for the Plumbing and Heating Industries Bureau of Chicago, and before that he was field secretary for the Associated Master Plumbers of Texas. He served as manager of the Fort Worth, Tex., association before associating himself with the state association.

In conjunction with the officers of the association, Mr. Denning is working on a constructive reorganization plan for the organization. The association meets Monday evenings at the chamber of commerce.

◆

Research Anniversary Held At University of Illinois

Coincident with the quarter centennial celebration of the founding of the Engineering Experiment station at the University of Illinois, including a conference on education in materials of engineering and the dedication of the materials testing laboratory, was the holding of the quarter-centennial celebration of the Illinois State Geological Survey and twenty-third annual meeting of the Illinois State Academy of Science. The combined programs extended from the thirtieth of April to the third of May.

Probably of most general interest to the heating contractor was the paper entitled "The Automatic Stoker for Heating Service Using Illinois Coal," by Professors A. C. Willard and W. H. Severns of the department of mechanical engineering. It was stated: "The development of automatic equipment and methods for heating buildings in the past few years has included practically every kind of fuel and type of burner. The final objectives in this development must provide for economy (including smokelessness), comfort and convenience. What is needed, in the ultimate solution of this problem, is automatic equipment which will burn the least expensive fuel in any locality with maximum efficiency and with practically as much comfort and convenience as obtained with any other fuel, fired manually or automatically."

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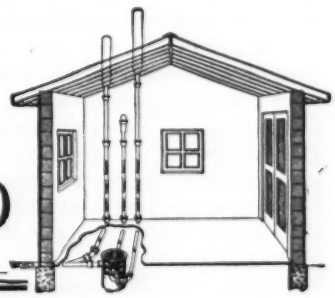

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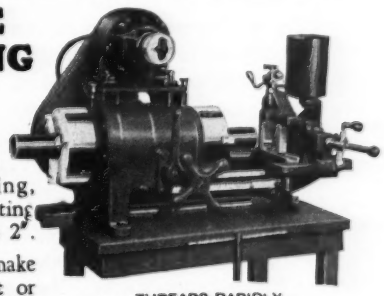

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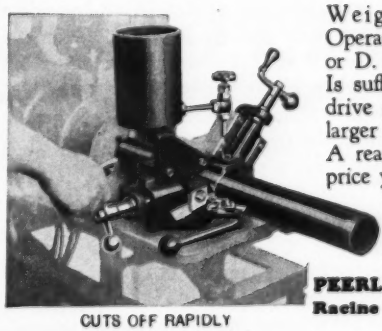

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Potomac States Institute Discusses Technical Subjects

THE second annual short course in plumbing and heating, of the Potomac States Institute, was held at George Washington University, Washington, D. C., on April 24 and 25. The first part of the report on this meeting appeared in the May 3 issue of DOMESTIC ENGINEERING, lack of space prohibiting the publication of the entire story. The following concludes the report:

The second day's session began with a paper on "Physics of Heating" by Walter B. Lawrence. He defined physics as a system of explanation of the why concerning inanimate things.

After briefly sketching the three ways in which heat is transmitted, Mr. Lawrence's remarks dwelt largely on the subject of humidity. He called attention to the fact that relative humidity, dew point, carbon dioxide content, air purity and other factors entering into the proper conditioning of air required for human habitations, are now being studied as never before.

Experiments and experience show human comfort and well being to be greatly affected by humidity as well as by the dry bulb temperature.

Air motion, dustiness, odors and other factors have their effect, but the amount of moisture in the atmosphere and the room temperature are interdependent in fixing the effective temperature or zone of comfort.

Most people are most comfortable when the temperature is between 65 and 70 degrees F., and the relative humidity is between 30 and 60 per cent.

When the air is too dry, there is an excessive evaporation of moisture from the skin, accompanied by the feeling of coolness, dryness and general discomfort. Too much moisture also is a source of discomfort.

Relative Humidity

The term relative humidity sounds a bit formidable, but should not be so considered. Studies show that at warmer temperatures more water vapor can be carried than at colder temperatures. Suppose it is assumed that at 60 degrees the air is completely saturated with moisture, at which condition 100 per cent relative humidity exists. A chart giving this sort of information shows that each cubic foot of air at that condition contains 5.8 grains of moisture. Now if the air be heated to 70 degrees with no moisture added, it still holds 5.8 grains of moisture, but air at 70 degrees is able to support 8 grains per cubic foot. So we see that it contains only

$$72 \text{ per cent } \left(\frac{5.8}{8} = 0.72\right)$$

of the maximum possible, or the relative humidity is 72 per cent.

If the air is cooled it can carry only a smaller amount of moisture. Air at 70 degrees and 72 per cent relative humidity when cooled to 60 degrees becomes completely saturated. This is the dew point when the temperature is being reduced, because any further cooling reduces the amount of moisture which can be held in the air, and the excess is deposited as dew.

In winter weather we ordinarily take cold air into a room and heat it to 70 degrees without adding moisture. The air is then too dry, and induces too rapid evaporation of moisture from the body. This evaporation is accompanied by the removal of heat, and leaves the occupant slightly chilled. This requires the raising of the room temperature still higher to gain necessary comfort.

The importance of humidification or de-humidification has not been fully recognized in the past, but recent advances in air conditioning apparatus have brought the matter to the fore sufficiently to warrant the belief that the next 10 years will witness the widespread use of air conditioning apparatus which will combine the heating system for winter weather with the cooling system for summer weather.

Small House Heating

Perhaps one of the most interesting features of the entire institute was the conference on "Small House Heating," under three headings, each handled by a different government or District expert. "Coal" was covered by J. F. Barkley, fuel engineer of the Bureau of Mines; "Oil" by Arthur H. Senner, mechanical engineer of the U. S. Department of Agriculture, and "Gas" was discussed by Herbert Gill, of the Washington Gas Light Co.

Mr. Barkley showed that the three principal systems of heating by coal are hot air, hot water and steam. In Pittsburgh it is largely hot air; in Washington hot water is chiefly used. In every instance, however, the problem concerns the getting of heat out of the coal and into the air of the room.

Insulation

In hot air operations it has been customary to cover the basement air ducts, leading to the vertical stacks, with thin asbestos sheet about .013 in. in thickness, as an insulation. The speaker pointed out the fallacy of this. It has been fully demonstrated by scientific experimentation, at the Mellon Institute in Pittsburgh, that this thin asbestos covering actually dissipates 37 per cent more heat than the bare pipe would dissipate. It has been further demonstrated that it would require a covering .2 in. thick to make the loss from covered ducts equal to that of the bright uncovered pipe, but that with a covering .4 in. thick a saving of 25 per cent over bare pipe would be effected. This would call for 7 layers of the .013 in. thick asbestos sheet, which should be applied loosely. The reason back of these unexpected results is that the surface presented by the asbestos is some three or four times greater than that of the plain metal surface, owing to the small unevenness of the asbestos.

It has now been demonstrated that the ordinary leakage of cold air into the house around doors and windows is sufficient for ventilation purposes for all small houses.

Radiator Covers

In referring to hot water installations, the speaker called attention to the tendency to use covers over radiators, and radiators fitting into walls to save room space.

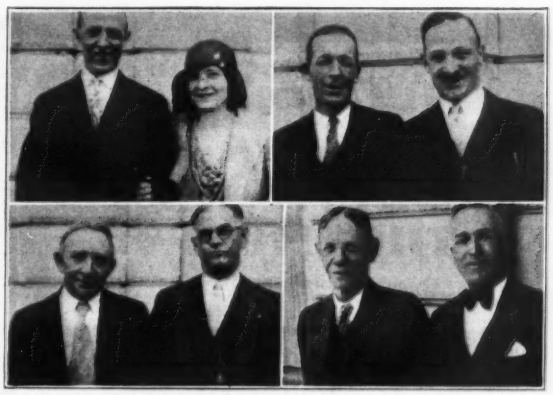
Covers for radiators affect the upflow of air through and across radiators. This means that a change is actually made in the rating of such radiators, as to their square feet of radiation. The decrease in effective radiation due to this cause may be as much as 25 per cent, depending on the covering used. The radiator cover should never be less than 2½ in. above the top of the radiator.

Grate Area

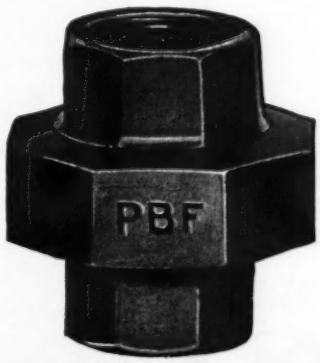
Another point brought out was that in the case of the ordinary vertical round boiler the adding of 3 sections to the fire pot and dome would only add about 10 per cent to the efficiency. The most vital point in the judging of small boilers is therefore the square feet of grate area. A square boiler of the same grate area as a round boiler has a longer perimeter to present the hot fuel bed to the water legs.

Various fuels are in use for heating—anthracite, semi-bituminous, low volatile or smokeless coals, and bituminous. In the vicinity of Washington another fuel is also in use, a Virginia anthracite or semi-anthracite coal,

A. Mistofsky, president Providence association, and M. P. Burnside, past president of Rhode Island association. Pictures taken at recent convention of Rhode Island Master Plumbers' Association



Top row: Mr. and Mrs. Fred Bock, H. H. Mellema and William M. Donges, all of Denver. Bottom row: Moses Stone of Greeley, W. S. Forbes, secretary of Pueblo association; L. E. Sinclair and F. G. Hendrie, both of Denver. Photos taken at the convention of the Colorado Society of Sanitary and Heating Engineers



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between the anthracite and semi-bituminous. There is not a great difference in efficiency in the heating of small boilers between the different kinds of fuel. Tests show the heat transferred to the water per pound of coal about the same for the different coals. The actual efficiency of anthracite coal is somewhat higher, but it has a lower B.t.u. content, and the reverse situation exists with semi-bituminous.

Buckwheat Coal Tendency

A distinct tendency is noted in Washington and surrounding states toward the use of buckwheat coal in connection with a flat grate, with a blower to provide draft. This is proving a very satisfactory combination. The blower is necessary because most small house stacks do not have sufficient draft for a thick bed of small anthracite. Often only a small fan is needed. One kind in use is merely a 6 in. house fan with an air duct. Sometimes a fan may be used set to blow through the ash pit door, and will give good results. It is always best to use an adjustable damper on the fan to control the air by means other than fan speed. When there is a metal to metal contact between fan and boiler, the sound is telephoned up through the radiators. The use of deadening gaskets helps to eliminate this difficulty, also the insulating of the fan from the basement floor. Such equipment can be made automatic by using controls to start and stop the fan, based on room and water temperature. Generally it is desirable, for best results, to install special grates.

Cure for Clinkers

The best cure for clinkers is the use of a large boiler which does not require so intense a fire. It is advisable before changing to the use of buckwheat coal to make sure that the boiler can carry the load with that particular kind of coal.

There are now on the market small stokers for small house heating, using small anthracite coal. These dump the ashes into a can and feed the coal from a hopper or magazine. This arrangement also is satisfactory. The chief point is to size the stoker properly for the job. Small house stokers may also be obtained for soft coal.

The two features in the use of coal as a fuel that are burdensome are the shoveling of the coal and the removal of the ashes. To eliminate these conditions has brought the development of the oil burner and gas burner as leading features of heating push button service.

The address on the subject of "Oil" was largely an informal blackboard talk descriptive of interesting oil burner tests, covering two factors,—(1) Fuel rate and (2) Air-fuel ratio.

The remarks developed a lively discussion relating to the use and efficiency of different grades of oil.

The liveliest discussion of the entire conference followed the reading of the three papers on "Small House Heating," all three speakers participating.

◆

Oshkosh Association Elects Officers

The Oshkosh, Wis., Sanitary Club has elected F. J. Merten, president; Frank R. Schuppert, vice president; H. E. Scheinert, secretary; and R. J. Toner, treasurer.

Texas Master Plumbers' Convention

(Concluded)

The annual convention of the Associated Master Plumbers of Texas was held at Abilene on April 14, 15 and 16, the first part of the Texas convention story appearing in the May 3 issue of DOMESTIC ENGINEERING. The story is concluded below:

A resolution was submitted and accepted favoring a registration fee of $5 per member to offset the expense incurred in conducting the annual convention. This resolution was followed by another which recommended that the convention assembly indorse and co-operate with the credit bureau of the Texas supply association for its work in behalf of the industry, and for the stand it is taking in eliminating unfair credits.

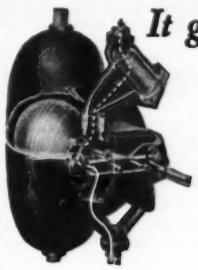
The convention group paid its respects to the memory of President John A. Quinn of Philadelphia, and to Alfred C. Eynon of Canton, Ohio, national treasurer, both of whom passed away recently.

In view of the national association's move to adopt a set of fair trade practice rules, the Texas association voted to give its support to the parent organization's action in this direction.

The following resolution having to do with architects' specifications was approved and accepted: "It is common knowledge that a large number of architects do write their specifications including the mechanical equipment in the general contracts and, whereas, it has come to our knowledge that the majority of general contractors would be pleased to segregate the contracts of the mechanical equipment contractors from the general contracts, therefore, be it resolved, that we petition the state association of architects asking them for their co-operation to gain their consent separating the mechanical equipment contract from the general contract."

Top row: C. A. Dunlay, Dunlay-Armand Co., Houston; Charles Singleton and V. H. DuChesne, both of N. O. Nelson Mfg. Co.; A. C. Milliken, Reading Iron Co. Bottom row: P. G. Callahan, John Thiel, state secretary-treasurer; Mrs. John Thiel, J. Inman, Kohler Co.; W. H. Warren, state president; Mrs. W. H. Warren, all of Houston

Resolution number seventeen read in part: "Whereas



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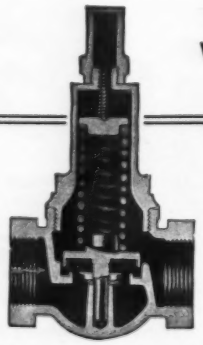

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our present by-laws have been altered, amended and changed by resolutions so much so that very few can consistently arrive at any positive conclusion of what our by-laws really mean. Therefore be it resolved, that a committee of three, who are acquainted with parliamentary rules, and commercial organization, be appointed to formulate and edit a new set of by-laws consistent with our present requirements and the necessities of our organization, and that this committee be instructed to have the formula of the new by-laws ready for presentation at the next convention."

The nineteenth resolution was concerned with the promotion of financing plans for cities desirous of improving health and sanitary conditions within their community. The convention group pledged itself to co-operate with various county and city authorities to foster and promote financing plans in each member's own community for the improvement of health and sanitary conditions. A standing committee is to be appointed by the president to work in conjunction with the state board of health in furthering plans to this purpose.

Resolutions of thanks and appreciation were tendered to National Director Thomas and to Mr. Ehlers for their generous work in connection with the convention.

C. M. Zeigle of Dallas, former state field secretary, gave a complete report of his activities in the field during the first part of the past year, and discussed a trip to Washington, D. C., made in connection with association affairs by himself and President Newton. At this time Mr. Thomas made a motion, which was passed, that Mr. Zeigle be made an honorary member of the Texas association.

C. A. Dunlay of the Dunlay-Armand Co., Inc., Houston, advised the master plumbers present to go home and make friends with their business competitors and try to organize themselves on a co-operative basis. C. W. Richmond of McAllen gave a report of his trip to Buffalo, N. Y., last year to attend the national convention. E. S. Cummings of Abilene, an attorney, made an address on the application of laws to organization affairs.

The high light of the entertainment program was the dinner dance at the Hilton hotel, given by the Abilene Chamber of Commerce, on the evening of the second day of the convention. Among those who addressed the group while the banquet was being served were: Judge James W. Stinson of Abilene, Lieutenant Governor Barry, Director Thomas, A. Poole, president of the Abilene State Bank; Mayor Hayden, Prof. M. H. Jensen of Abilene, Mr. Webb, Mr. Netzer and Mr. Ehlers.

◆

North Shore Association Elects Officers

The North Shore Master Plumbers Association, Salem, Mass., recently elected the following officers for the ensuing year: Ralph C. Merrow, president; Maurice R. Sheehan, vice president; James H. Trow, secretary; and John F. Cabeen, treasurer.

◆

Richmond, Ky., Master Is Busy

Ben F. Hurst Co., plumbing and heating contractors of Richmond, Ky., have recently been awarded the plumbing and heating contract on a theater building, in that city. The company is also doing the heating and piping on four filling stations of the Texas Oil Co.

Modern Credit Methods

By HARRY M. WORMLEY

The following essay on credit methods was prepared by Harry M. Wormley of Struthers, Ohio, a member of the essay committee of the Ohio State Association of Master Plumbers, and was read before the recent annual convention of that organization

WHEN America was new, society and custom were forming the nucleus of the greatest government the world has ever known.

Wampum became the chief medium of exchange among the early settlers and various commodities were bartered and traded for other things of true intrinsic value.

Promise of future payment in business transactions was rarely considered or accepted.

No method of trust was widely exercised and no system of credits had become recognized.

But with increasing population and the development of natural resources and wider ranges of business there has since been established throughout our land an intricate and comprehensive network of credit systems carrying promises of payments amounting to billions of dollars and constituting losses in business circles aggregating many millions of dollars annually.

Modern credit methods are becoming recognized as dangerous to business interests and are being looked upon as a menace to the industrial world and the government at large.

Though we desire to eliminate or correct this evil we must realize it would be a stupendous task revolving through many years of adjustment and filled with the great danger of destroying the equilibrium of business stability.

Credit is here, whether it is so desired or not, and will leave its mark upon this generation. It engenders an inherent disorder in civic affairs; it fosters a feeling of disregard for the welfare of your fellow man; it forestalls confidence in the economic relations of individuals and endangers public interest in national life.

We who have had to do with credit in some form may not safely turn back to the early days, lest we too, like the proverbial wife of Lot, in looking back may turn to blocks of salt.

We might well call this the "credit age," for there are not many enterprises today in which credit has not become a general factor in some of the transactions.

During Civil War days, Artemus Ward wrote, "I am not a politician, and my other habits are good." That was a remark worthy of consideration.

Most plumbers may say they are not politicians but few of them can deny they have a bad habit—that of granting promiscuous credit.

It seems a regrettable condition that those engaged in the plumbing industry have given so little time and thought to devising a practical credit system.

If a customer seeks a loan from any recognized banking company he must first convince the bankers that he is sufficiently responsible—in this he is usually required to submit a statement of his financial ability—then he must designate what is to be done with the money he wishes to borrow. If the customer is not well and favorably known to the bank officials he must insure the payment by securing the signature of one or more reliable persons with his own on the note before the loan can be completed.

If a purchaser asks for credit at any well organized general store where he is not known he may not be refused but will be asked to give sufficient reference which will be immediately and thoroughly investigated by a competent credit manager who will probably assign a certain credit limit. Any failure to promptly pay for a purchase when due will at once terminate the use of later credit.

Some stores which handle a special class of merchandise—such as furniture or automobiles or electrical appliances—do not make extensive investigations; but when a purchase is made and credit allowed the buyer is required to make a substantial payment and sign a contract which guarantees that he will make regular payments of the balance with interest.

The contract is also in effect a chattel mortgage which grants the dealer the right to repossess the property without refunding any of the money paid for it if the buyer for any reason fails to meet his obligations.

In the plumbing business the sale must include both labor and material; and credit methods are sacrificed for keen competition.

Contract work makes up the bulk of this industry; and the customer is usually a general contractor who first asks for an estimate on work to be done. He is always in a hurry. The work is figured and he is given a bid which, on account of speed and competition, may be too low.

If he means to pay for the work when it is done he will probably ask for a lower bid or will get estimates from other plumbers till he finds one who makes a mistake and undertakes the work too low to be profitable. If the general contractor happens to be dishonest he may have the work started immediately; and when it is completed will be slow to make a settlement. After a long delay he may pay some of the bill and promise the balance within a short time. Inconsistent with this, he may make excuses and continue to delay the payment until the

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time in which to secure a lien on the property has expired and the balance is never paid.

In repair work, the customer may phone that some part of his plumbing system is defective and must be repaired immediately. The plumber does not have time to investigate the customer and may not know whether he owns the property or is a tenant. Neither does the plumber dare to ask whether he will pay cash or expect credit lest it offend. To look up a credit rating or to make inquiries would be out of the question; the time involved would be too long and a competitor would get the work.

In summing up the requirements in some of the modern credit methods we find—the banker holds a note with approved security, the progressive merchant holds an approved class of customers selected by a competent credit manager and the specialty merchant holds a chattel mortgage but the plumber "holds the bag." Those engaged in the plumbing industry should be aroused from this deep state of lethargy.

It would seem possible to establish a centralized bureau of information within each individual association through which the plumber may readily ascertain the credit rating of any prospective customer. Such a bureau could be aided by receiving from all plumbers a regular monthly report of the customers who have failed to pay.

Small jobs should be cash and the customer so instructed before the work is started.

The repair man should be provided with a price book and ordered to collect when the work is done.

A uniform proposal sheet stating all terms and conditions may simplify and aid in making hasty bids on work to be done.

Any work done for individuals who are not general contractors should be charged to both husband and wife so that both may be liable for the account.

Such a system of handling work and credits would insure a fairness to all engaged in plumbing and would cause no injustice to an honest customer.

Then we may face our trade without apprehension; and may approach our work with an unfailing trust like one who girds his tunic about him and goes forth to conquer.

◆

Vic J. Killian to Head Winnetka Chamber of Commerce

Vic J. Killian, master plumber of Winnetka, Ill., will head the Winnetka Chamber of Commerce for the year 1930-1931 as president. Mr. Killian was elected to this office at a meeting of the chamber on April 14. He and the other officers chosen at that time were installed at the annual chamber of commerce meeting and dinner on May 12.

◆

East St. Louis Association Elects Officers

The East St. Louis, Ill., Master Plumbers' Association has elected the following officers: Thomas McEvilly, president; Albert Davinroy, vice president; John F. O'Flaherty, secretary; and E. J. Maag, treasurer.

Questions?

ASKED BY READERS AND ANSWERED BY EXPERTS

The Venting of a Battery of Nine Urinals

Editor, DOMESTIC ENGINEERING:—Enclosed find rough sketch showing installation of porcelain stall urinals in a new school in our city.

You will notice there are nine urinals on the first floor, with no traps, a 3-inch running trap in the waste line without vent, but the end of the waste line is vented full size, 3 inches, through the roof. A floor drain is taken off as shown. This waste line is suspended from basement ceiling and drops into sewer the height of basement ceiling, approximately 12 ft.

The journeymen and master plumbers in our city have objected to this method of plumbing, but the architect and the school board say that it is good plumbing and satisfactory to them.

Would like to have your opinion on this.

Master Plumbers' Association.
Illinois. Secretary.

We have no hesitancy in saying that the master and journeyman plumbers are correct in this matter, and the architect and school board entirely wrong.

Fig. 1 is the drawing that has been submitted, showing the plumbing as now installed.

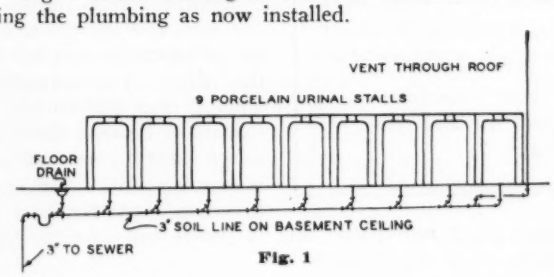

Fig. 1

We think it is one of the worst instances of poor plumbing that has ever come to our attention—nine urinals served by one trap!

The condition is unusually bad because the work is installed in a building where young children come together.

We do not mean to imply that disease would result from the foul odors, but we do mean that the writer would not want a boy of his growing up under such foul school conditions, particularly when such conditions are entirely unnecessary.

At best, the urinal is a foul fixture, and difficult to keep clean. One has only to step into an ill-equipped and ill-kept toilet room in some railroad station to verify this statement. The only way the fine public toilet rooms of today maintain so pure an atmosphere is that the fixture and piping equipment is of the highest type in the first place. All the attention in the world to the cleanliness of the boys' toilet room in this school would not make it a room one would want to remain in a moment longer than necessary.

Certainly each urinal should have its own separate trap. We are unable to consult your plumbing code, but if one has been enacted it will undoubtedly be found

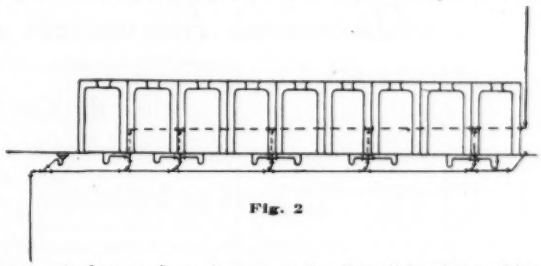

Fig. 2

that each fixture is to be trapped. Possibly the architect may claim that the running trap would cover such a requirement. We can tell him that such an interpretation would be a crime against the boys and girls that attend this school.

As shown in Fig. 1, the entire run of 3-in. horizontal waste constantly throws off into the toilet room, through each unprotected fixture outlet, its concentrated foul odors. Add to this the branch connections, and the total length of fouled pipe throwing out foul odors into the room will be thirty-five or forty feet.

The vent through the roof may do some good, but mighty little in our estimation, for the running trap on the main line effectually stops all circulation which might be of some assistance in carrying off the foul odors.

Certainly the school authorities should see to it that the condition, as at present existing, be remedied at once.

There are two different ways in which this battery of urinals might be correctly installed. We show these

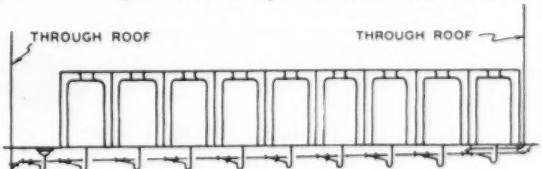

Fig. 3

methods in Figs. 2 and 3. The former shows the use of individual vents; the latter shows the use of circuit venting. In either case the main waste line should run as close to the ceiling as possible. When this is done, the inlet to the trap from the fixture is of least possible length, and then the least length of fouled waste pipe

can throw off offensive odors into the room through the fixture outlets.

Referring to Fig. 2, instead of giving each fixture a separate waste and vent, we have shown a unit waste and vent, which will effect a considerable saving in expense.

In Fig. 3 we show a circuit vented installation, and we are under the impression that it was thought by the architect that he was getting a circuit vented job when the work was originally installed.

We feel that 3-in. is not large enough for the proper handling of 9-stall urinals. Of course the degree of pitch makes a great deal of difference in the number of fixtures that can be efficiently handled.

The stall urinal represents three fixture units, and nine of them amount to 27 fixture units. Even if the pipe had a slope of ½ in. per ft., 3-in. would be under the desired size. Unless the slope or pitch is greater than this amount, we would recommend 4-in. as better fitted for the size of the installation under discussion.

More really needs to be said concerning the running trap shown in Fig. 1. While this trap affords protection against the entrance of sewer and drain air and gases, this should be done by the individual trap. Furthermore, this trap acts as an obstruction, and would certainly act to reduce the carrying power of the horizontal line which is none too large in the first place.

This running trap acts essentially in the same manner as a main house trap. The latter has to have a fresh-air inlet to overcome the air-lock that would occur between the trap seal and a heavy flush of water down the pipe. Therefore, even if it was right to use a running trap on this battery of urinals, it would actually be necessary to employ a fresh air inlet extending to the outer air. We do not mean by this however, that Fig. 1 could be converted into a safe installation by the use of a fresh-air inlet.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of April 19, and the accompanying answer is by a reader:

How would you determine the size of steam and return connections for indirect air heaters of the extended fin or cast iron type when used with a fan?

How Would You Answer This Question?

Would it be better practice to use individual vents on a battery of water closets connected to the house drain of a large building or to use a circuit vent?

Answers based upon your experience, and suitable, will be paid for and published in the June 14 issue.

THE sizing of steam and return pipes for air heaters generally presents little difficulty when the equivalent direct radiation is known. Where the equivalent direct radiation is not known it must be computed, and where the heater consists of several rows or stacks or even sections, each portion must be calculated separately. Where the air temperatures are around zero, 50 cu. ft. heated one degree Fahr., should be used as the equivalent of 1 B.t.u., while with temperatures around 70 deg. Fahr., this increases to 55 cu. ft.

The formula for air ranging from zero to, say 50 deg. Fahr, would then be

$$\frac{\text{C.f.m.} \times (\text{T}^\circ - \text{t}^\circ) \times 60}{240 \times 50} = \text{E.D.R.}$$

and for temperature ranging from 50 deg. Fahr. to, say 100 deg. Fahr., would be

$$\frac{\text{C.f.m.} \times (\text{T}^\circ - \text{t}^\circ) \times 60}{240 \times 55} = \text{E.D.R.}$$

in which C.f.m. = cubic feet per minute.
T° = final temperature of air after passing through the heater.
t° = initial temperature of air before passing through the heater.
E.D.R. = equivalent direct radiation.
60 = constant (number of minutes in 1 hour).
240 = constant (number of B. t. u. in 1 sq. ft. radiation).
50 or 55 = number of cu. ft. of air heated 1 deg. Fahr. by 1 B. t. u.

The easiest method is to figure the heater by rows and then to divide the equivalent direct radiation for each row by the number of stacks or sections in the row. For example, what is the E.D.R. for a two-row heater through which 64,000 c.f.m. of air is passing if the temperature rise in the first row is zero to 25 deg. Fahr., and in the second row 25 deg. Fahr. to 47 deg. Fahr.?

Assume each row of heater is arranged in 4 stacks, 2 wide × 2 high and that the air enters at zero.

Using the first formula—owing to the entering air being at zero—the E.D.R. for the first row then becomes

$$\frac{64{,}000 \times (25^\circ - 0^\circ) \times 60}{240 \times 50}$$

or

$$\frac{64{,}000 \times 25 \times 60}{240 \times 50} = 8{,}000 \text{ sq. ft. E.D.R.}$$

As this is divided up among 4 stacks the E.D.R. for each stack will be

$$8{,}000 \div 4 = 2{,}000 \text{ sq. ft.}$$

Now taking the second row and still using the same formula the E.D.R. for the entire row is

$$\frac{64{,}000 \times (47^\circ - 25^\circ) \times 60}{240 \times 50}$$

or

$$\frac{64{,}000 \times 22 \times 60}{240 \times 50} = 7{,}040 \text{ sq. ft. E.D.R.}$$

As this row is also divided into 4 stacks each stack will represent an E.D.R. or

$$7{,}040 \div 4 = 1{,}760 \text{ sq. ft.}$$

Proceeding to the other side of the air washer where more heating of the air takes place two more rows of heater (each in four stacks) are found to be heating the air from 47 deg. Fahr. to 67 deg. Fahr., and from 67 deg. Fahr. to 85 deg. Fahr.

In this case the air temperature is in the neighborhood of 70 deg. Fahr., so the second formula will be used, this giving

$$\frac{64{,}000 \times (67° - 47°) \times 60}{240 \times 55}$$

or

$$\frac{64{,}000 \times 20 \times 60}{240 \times 55} = \frac{63{,}996}{11} = 5{,}818 \text{ sq. ft. E.D.R.}$$

and this divided among 4 stacks equals

$$5{,}818 \div 4 = 1{,}454 \text{ sq. ft.}$$

while for the last row using the same formula the result is

$$\frac{64{,}000 \times (85 - 67) \times 60}{240 \times 55}$$

or

$$\frac{64{,}000 \times 18 \times 60}{240 \times 55} = \frac{57{,}600}{11} = 5{,}236 \text{ sq. ft. E.D.R.}$$

which divided among 4 stacks is

$$5{,}236 \div 4 = 1{,}309 \text{ sq. ft.}$$

It will be seen from the above that, although all stacks are the same size and handle the same quantity of air, the E.D.R. grows less and less as the temperature of the air approaches the temperature of the steam. This is demonstrated in the following:

Each stack in 1st row = 2,000 sq. ft. E.D.R.
Each stack in 2nd row = 1,760 sq. ft. E.D.R.
Each stack in 3rd row = 1,454 sq. ft. E.D.R.
Each stack in 4th row = 1,309 sq. ft. E.D.R.

St. Paul, Minn. A. J. Parks.

Plumbing in the Harvard Chemical Laboratory

(Continued from Page 50)

pearance. To accomplish this, sink backs were designed to permit the table and hood to overhang.

Design of Special Sinks

All of the sinks are of chemical stoneware and have backs, being set at least 3 inches away from the wall. Sinks in tables have no back.

The waste for all sinks is integral with the sink. This is an important feature as it eliminates one of the most troublesome features in laboratory work, a joint in the sink itself. Therefore, no opportunity is given the acid to work between the sink and drain. The tailpiece of the sink goes into the hub of the waste pipe, giving the best possible arrangement.

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FOR PERFECT SERVICE

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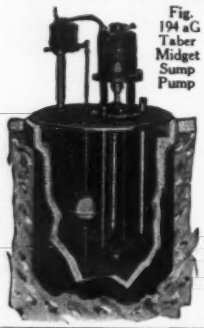

Fig. 194 aG Taber Midget Sump Pump

New LOW PRICES now remove the only possible objection to Taber Sump Pumps.

A Taber Sump Pump installation is Positive Automatic Relief from flooded conditions in basements.

Once installed, Taber Sump Pumps need no servicing . . . thus they will save you money.

Write for description and prices. See Page 923, Domestic Engineering Plumbing and Heating Catalog.

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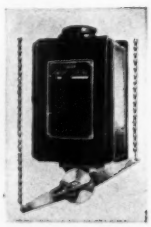

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ASK YOUR JOBBER

Backs of sinks were designed in advance for proper arrangement of holes, as the number of services varied according to the study.

Wherever possible, sinks on tables were installed without backs and the top of the table overhangs the sink by ¼ inch. This gives freedom in working from the end of the table into the sink. In such cases sinks are supplied by goosenecks which set on the end of the tables.

Ventilating Hoods

In designing hoods, the research inorganic hood was used as a basis and variations were made from this as required.

In research inorganic hoods, supplies are run above the top of the hood. Cocks feed directly out from these horizontal runs. To protect the supplies from the fumes created in the hood during the course of an experiment, a removable plate of transite, of which the remainder of the hood back is made, sets over the pipes giving the back of the hood a finished appearance and at the same time giving easy access to the pipes, if necessary.

In hoods, in which it is desired to control services without opening the hood, remote controls were installed. In such cases, supplies were brought up underneath the hood top and cocks were set on the hood top. Handles were marked with the symbol of the service they control.

All hoods have a stoneware drain, 5 inches in diameter with a 2-in. outlet. This was kept as far back in the hood as was possible so as to allow a maximum of working space. Where aspirator pumps would be used in hoods, the drain was located so that the outlet of the pump is directly over the drain. This necessitated a specially designed gooseneck.

Outlets were left where required, to permit attaching services to removable tables. These outlets were usually water, gas, waste, compressed air, steam and electrical connections.

Each building has its own automatic plant for distilled water. Mallinckrodt laboratory has in the pipe space above the third floor, one automatic steam operated distillation apparatus capable of producing 50 gallons of distilled water an hour, and a ceramic tank of 150 gallons storage capacity. This tank is cross-connected to an auxiliary manually controlled gas-fired distillation apparatus capable of producing 5 gallons of distilled water in one hour.

The gas-operated plant is connected to the steam-operated plant by a common header in the pipe space. By means of this header the gas-fired plant can be cut into use if the steam supply should fail. From the common header, branches are fed down to the various cocks throughout the building.

Block tin piping was principally used for the distilled water. However, some services of minor importance have aluminum pipe for the branch only.

All distilled water cocks are silver-plated inside and out.

Hydrogen sulphide is generated in the pipe space above the third floor of Mallinckrodt laboratory. This gas is fed down by means of aluminum pipe to the various cocks and gas is required on the third floor only.

Hard rubber cocks, which are the only kind impervious to the action of this gas, are used for the outlets. These

cocks have ¼-inch male threads on the pipe side and very fine orifice on the outlet side with tee handle.

Cold water outlets for the tables, pump controls, etc., have needle valves with metal wheel handles which enable the student to regulate the flow of water very closely.

The gas cocks, as a general rule, have lever handle, with a few exceptions where butterfly handles were requested.

Modern Drainage and Vent Fittings

(Continued from Page 78)

serving two lavatories or two sinks, also a bent vent fitting.

In Fig. 14 is shown a line of fittings, or rather a few fittings of an extensive line, which we took up in the previous article on this subject. The idea of the clean-outs is that every run of vent pipe may easily be freed of stoppage. They allow the entire vent system to be looked through.

Fig. 15 illustrates another special line of 3-inch fittings, of which only a part are shown. While these fittings are for cast iron caulked stacks, all side inlets are tapped.

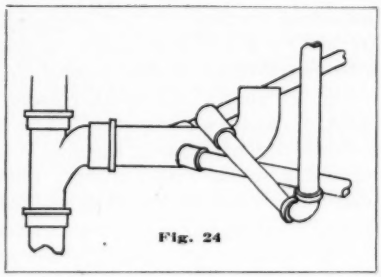

Fig. 24

It will be noted that each fitting is enlarged from a point just below the hub, this enlargement extending well down toward the spigot end. The area of the enlarged section is made equal to the area of the stack itself, in consequence of which each fitting has a branch vent area equal to the area of a three-inch pipe. Continuing the enlargement below the inlets, and the entrance of the inlets at an angle of forty-five degrees, allows rapid discharge, and overcomes any tendency to build up a body of water in the stack.

Lavatory Fitting Eliminates Use of Common Exposed Trap

Quite apart from the general line of fixtures we have been discussing, but very interesting and practical, is the lavatory fitting shown in Fig. 16.

The use of such a fitting makes unnecessary the use of the common exposed lavatory trap. We showed in a previous article another fitting which produced similar results. This leaves more available space beneath the fixture, which may be valuable where space is limited, for the placing of a radiator, a practice of special value in hotel and apartment bath rooms. This combination drainage and vent fitting, it will be noted, is quite different from the general run of such combination fittings.

Fig. 17 illustrates a very clever idea applied to lines of soil and waste pipe concealed below the cellar bottom.

It often happens that lack of knowledge of direction in which underground lines of pipe run necessitate considerable trouble and expense and delay.

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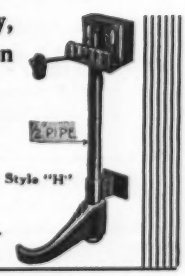

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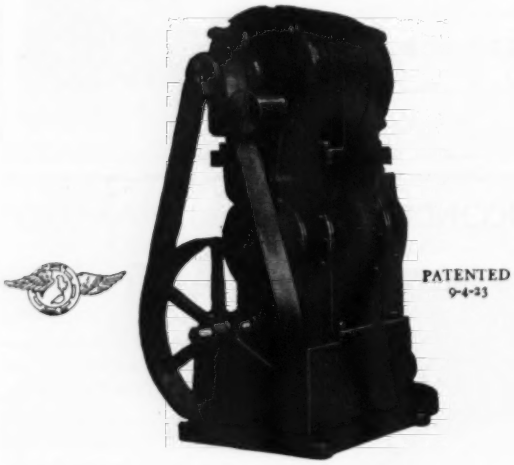

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Manufacturing Chemists Exclusively for the Plumbing and Steamfitting Trade.

All types of fittings used on horizontal lines may now be obtained with the large cleanout arrangement shown in Fig. 17.

When this type of cleanout fitting is used at each junction, the direction of every foot of the concealed piping may be ascertained by means of arrow marks on top of the cleanout ferrule. By indicating on the order the proper direction of the arrows, ferrules showing correct directions may be obtained. Extension pieces may be obtained for use when the piping is at a distance below the cellar bottom. The cleanout opening is large, so that the drain may be easily cleared of obstruction from any direction.

Venting of Water Closet

Before bringing this article to a close, we want to speak about the venting of water closets, especially batteries of these fixtures.

Fig. 18 shows a space-saving water closet fitting with a vent opening, for use on lines of water closets where each fixture is individually vented.

Fig. 19 shows the same fitting used on a circuit vented line, with a relief vent shown for the lower floor, and vent fittings provided with cleanout facilities.

Fig. 20 shows another type of water closet fitting for individual venting, for wall hung water closets. These are made right or left, single or double, as is the case with most fittings of this general character.

Fig. 21 shows still another battery fitting for individually vented water closets. The fitting shown is for a double line of fixtures, the double vent fitting connecting into a special single fitting. These vent fittings and water closet fittings are designed for length so that no cutting of short pieces becomes necessary.

Fig. 22 illustrates a fitting in the same line as Fig. 21, for a double line of water closets, where the main soil line is suspended on the ceiling below.

Another special fitting for a wall-hung water closet appears in Fig. 23, and finally in Fig. 24 is shown one of the vented cast iron bends with side inlets.

This concludes the series of articles on the subject of drainage and vent fittings.

While we have given consideration to a large number of fittings, we fully realize that the field is even larger than we have indicated, with new ideas constantly being developed.

Mechanical Refrigeration

(Continued from Page 72)

ment house owners, owners of the various size flats and renters. He then knows what sort of sales attack will be most suitable for a particular case before he sends a salesman out to call on the prospect. He knows whether he has an opportunity to sell a hundred unit system or a self-contained unit for a bungalow.

This prospect list is then worked with sales letters and circulars, and numerous business inquiries are developed that can later be followed up with personal contacts. Business reply cards are also mailed out to the names on this list and additional information about the prospect is thus acquired. Another type of business reply card used by the Inland company is reproduced herewith. Although this card is used in connection with the company's heating contracting business, another such

card is being prepared to cover mechanical refrigeration.

Selling the Apartment House Owner

The strongest argument in selling refrigeration to the apartment house owner, Mr. Masoner believes, is that it will make his apartments much more readily rentable. Mr. Masoner shows the landlord how he can increase the rental on each apartment by $2.50 per month, usually with the ready consent of the tenant, when the tenant knows he is going to get something for his money, and allow each unit of the installation to pay for itself within a few years. "Ordinarily," said Mr. Masoner, "the apartment owner can be convinced that his apartments will be easier to rent and will command a better price when equipped with modern refrigeration, for nearly every prospective tenant will ask about that very thing, and the owner has seen too many of them turn away when they discovered just an old-fashioned ice box in the kitchen. Also, when we remind him that his present tenants are probably asking for a mechanical cooling system on the threat of moving, he stops to reflect and we score a point. We have no difficulty in proving to him that the ice box is totally obsolete."

If it is the home owner, on the other hand, with whom you are dealing, pointed out Mr. Masoner, the salesman has the problem of selling the customer on a particular make of refrigeration and not on the idea itself. But where the prospect is not already sold on the idea, a few minutes explanation of the conveniences of a refrigerator that takes care of itself, requires no attention and saves money daily, both in keeping foodstuffs in better condition and in ice bills, will soon win the objector over on that score regardless of whether or not he may be induced to buy. The factor of increased sanitation of the modern mechanical cooling unit is also a selling point.

Another argument that the Inland company's salesmen have found effective, is the guarantee of a year's free service. This is given both on the multiple unit and the single unit systems. Since most of the servicing, however, comes within the first three months, this guarantee does not entail a greatly increased overhead, and yet redounds profitably as a sales clincher. This servicing overhead, at any rate, is added into the original price of the installation and figures out to about three to six dollars extra per unit.

In the store itself are displayed self-contained units and cabinets for multiple unit systems. An individual unit is kept in constant operation so that the prospective buyer may see the machine as it would be in an actual installation, enabling him to know beforehand just how much noise it will make.

The salesmen employed by the Inland company, as in the case of most of the other heating contractors who have been selling refrigeration for only a year or more, have been schooled primarily in selling heating equipment, but during the period that has elapsed they have received training in the elements of refrigeration selling. And on this point, Mr. Masoner stresses the importance of the salesman having a thorough knowledge of the product he is selling, and now that he is developing his refrigeration line on a broader basis, he plans to employ men who have been trained to sell this particular commodity.

All Steel ∴ Electric Welded ∴ Heating Boilers

BUILT FOR THOSE WHO HAVE NO PATIENCE!

Johnston Boilers have been carefully designed and constructed for those who have no patience with equipment which has either structural or mechanical defects.

Every JOHNSTON unit is thoroughly tested before it leaves the factory — every JOHNSTON boiler can be depended upon to be as near perfect as modern science can make it.

Learn how our 65 years of experience in building boilers, thousands and thousands of them, can be of special value to you in solving your boiler problems.

Investigate the JOHNSTON proposition. Write for the interesting JOHNSTON catalog today.

JOHNSTON BROTHERS, INCORPORATED
Ferrysburg, Michigan

Woman's Page

It is always interesting to members of the auxiliaries to learn what is going on in other organizations of women in the industry. If officers will write in promptly about the meetings of their auxiliaries, this news will not only be of interest to women in other towns, but will also be of interest to their own members. For example, an advance notice of a meeting or social affair, if printed on the Woman's Page, may reach some member who was not present when the affair was planned. In this way, attendance at the meetings will be increased.

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An Appeal to Women's Auxiliaries

At the Buffalo convention June, 1929, the Woman's National Auxiliary voted unanimously to create a one-boy scholarship, to be known as the Past Presidents' Scholarship. This action was approved by the convention of the National Association of Master Plumbers. Of the 48 presidents, 25 have gone thither. Some of the living ones are in the evening of life. We should not overlook the years of unselfish service of these men, rather should we deem it an honor to educate the son of a master plumber who in the years ahead will revere these faithful servants as men who builded better than they knew, and will forever hold in grateful remembrance the Woman's Auxiliary to the National Association of Master Plumbers. This outstanding scholarship may be the last one-student scholarship by the Woman's National Auxiliary. As past president of the woman's auxiliary which I loved supremely, I ask you—give this small measure of honor to the leaders who have borne the burdens that you might profit.

Mrs. Edwin D. Hornbrook, Past President, Women's Auxiliary of the National Association of Master Plumbers.

A Message to Auxiliary Members

By Mrs. George L. Smith, of Amarillo, president of the Ladies' Auxiliary of The Associated Master Plumbers of Texas

Naturally, officers in charge build plans which they desire to see fulfilled during their time of service and they will, if earnest in their efforts, see the results of their endeavors. Let there be rejoicing when the efforts put forth blossom during your term of office.

Growth is not always quickly attained. Building for others, we build for ourselves also, and in working for the welfare of others we bring as much good into our own lives as we confer upon theirs. To get away from measuring things by what they yield to us individually is a lesson which we all must learn, and there is no better opportunity for learning it than in the great work of our organization. Each officer should aim high, honest endeavor coupled with joy in our work and a fervent desire to serve humanity is invigorating and refreshing, and reacts not only on ourselves, but on those with whom we come in contact.

In the words of the poet, we learn that:

The price of success
Is digging in
And working hard
If you want to win;

For it never comes
To those who shirk,
But to him who eats
And sleeps with his work.

Massachusetts Auxiliary Holds Successful Convention

The Women's Auxiliary of the Massachusetts State Association of Master Plumbers held its annual convention on April 23 at the Hotel Statler, Boston. The president, Mrs. Charles D. Kieser, of Newton, opened the meeting with the members singing "America," following which a report from the credential committee, offered by Mrs. C. W. Whitmarsh of Taunton, established the fact that there were thirty-eight members present and three guests. At the conclusion of the roll call by the secretary, Mrs. Harry J. McGourty of Newton, the minutes of the meeting of a year ago were read. A tribute of a moment's silent prayer was offered for National President John A. Quinn of Philadelphia; National Treasurer Alfred C. Eynon of Canton, Ohio, and Mrs. Fred Hacker of Kansas City, Mo., former corresponding secretary of the national women's auxiliary, all of whom passed away during the year.

A letter was read from Mrs. W. E. McAndrew of Tampa, Fla., president of the Women's Auxiliary of the National Association of Master Plumbers, in which the Massachusetts auxiliary was complimented for its national convention work, also regarding the adoption of white and

Miss Mary Cleary, new secretary of the Massachusetts State Auxiliary, and Mrs. James Murphy, of New Bedford, new president of the state auxiliary

gold as the national auxiliary colors. The letter also indicated that Mrs. Kieser will be called upon to open the national meeting at Boston in June with a few words of greeting and present the national auxiliary officers. The suggestion was also made that it might be well for the members to make sure their dues are paid so that they may vote at the national meeting.

Mrs. J. Preston Perham of Boston, third vice president of the national auxiliary, expressed words of greeting at the request of Mrs. McAndrew, indicating that she is looking forward to meeting them all in June. Mrs. Perham suggested as a slogan "Over the Top in Boston."

At this point in the proceedings the program as it concerned the auxiliary members was read. Reports from the various local auxiliaries were indicative of unusual activity. Mrs. Charles Kane of Worcester, reporting for the organization in that city, said the officers have experienced a good deal of encouragement, as both the meetings and the social gatherings have been well attended. Mrs. John J. Burke of Newton, speaking for the auxiliary in that city, said the membership has reached sixteen and every one seems enthusiastic over its activities. A report from Fall River, offered by Mrs. Franklin E. Darling, indicated a 100 per cent membership and a full year of social activity. For the Boston auxiliary Mrs. Robert A. LaCentra, reporting in place of Mrs. H. L. Rose, said:

The Outer Spring

is your assurance of permanently perfect, hairline operation

DONNELLY for dependable protection

Your customers want the kind of heating system protection that Donnelly Outer Spring Relief Valves make possible.

Permanently sure; instant adjustability; freedom from rust and corrosion and backed by the Donnelly guarantee that is your assurance of highest quality design, workmanship and materials.

Donnelly Manufacturing Company

29 Mills St. Malden, Mass.

Complete stock carried by

New York Representative: Henry Stein, 50 Cliff Street, New York City

Philadelphia and Southern Territory Represented by Derbyshire, Mack & Morgan, Inc., Delaware Ave. and South St. Philadelphia, Pa.

A FAST START

AND A PERFECT THREAD

Even Over the Meanest Burr

The leading threads in the double taper of the throat, of every Kalorized ARMSTRONG Adjustable Die (see Illustration above) pull the dies on the pipe without effort regardless of the burr. These added threads are so designed as to immediately start a perfect cut without the slightest strain and continue to lead the dies on the pipe until final thread is completed. Every thread will be perfect from first to last.

Practically every Jobber will supply you with a full range of ARMSTRONG Adjustable Stocks and Dies for the threading of pipe from ⅛ to 4 in.

Don't Push. Don't Shove. They Start the Thread with the First Turn.

Send for Booklet "B"

THE ARMSTRONG MFG. CO. FOUNDED 1900 OF BRIDGEPORT CONN.

KALORIZED ARMSTRONG ADJUSTABLE DIES

Fretz-Moon

How Do You Judge Pipe—

If you judge pipe on its strength of weld, ability to take sharp, clean threads, easily, then Fretz-Moon Pipe should be your "old reliable." Uniform in quality, absolutely dependable—specify Fretz-Moon, black or galvanized, on your next order and note the added satisfaction on the job.

FRETZ-MOON TUBE CO., INC.
Butler « » Penna.

PIPE

BLACK and GALVANIZED

"The membership in the Boston auxiliary has been increased from sixteen to thirty-two during the year and each member is seemingly wholeheartedly in the work."

National President George H. Drake of Buffalo addressed the meeting, saying that the program for the national auxiliary meeting arranged by Mrs. McAndrew is both interesting and educational, in addition offering unusual entertainment. The acting national president, touching upon the manner in which the members of women's auxiliaries throughout the country have rallied to help the local associations, expressed the feeling that they have done nobly well. He also thanked the ladies for the unparalleled help that has been given in arranging for the national convention.

Mrs. H. J. McGourty in rendering the secretary's report stated that the state membership has gained a total of eighty-six. Mrs. A. E. McDonald of Worcester gave an accounting of her treasurership which disclosed a year satisfactory as far as finances are concerned. Mrs. Kieser in her report urged that greater effort be put forth for the scholarship fund and asked that the same unselfish co-operation that the members favored her with be given the new president. It was voted to contribute $100 to the scholarship fund.

Going into the election of officers the meeting elected as president, Mrs. J. F. Murphy of New Bedford; vice president, Mrs. Phoebe Whitmarsh of Taunton; treasurer, Mrs. Nils Jepson of Newton, and secretary, Miss Mary E. Cleary of Boston. Mrs. Kieser presented gifts to the retiring secretary, Mrs. McGourty, and President Elect Mrs. Murphy. A letter from Mrs. Emily Hornbrook of Kansas City, Mo., former president of the national auxiliary, was read, in which she thanked the Boston ladies for the gift which they gave her.

New Auxiliary Organized in Flint, Mich.

A women's auxiliary was organized at Flint, Mich., on the evening of April 24, at a special meeting of the master plumbers' association held in the office of the health department on Beach street. The new auxiliary was organized with a membership of thirty-one women, and a charter was received from the national auxiliary. Five Detroit men and women, national and state officers, addressed the group and presented the charter.

Arthur H. Snyder, a director of the national association, urged attendance at the national convention to be held at Boston in June. He also discussed the new state plumbing code. Frank E. Stuart, field secretary of the state association, spoke on "The Plumbers' Opportunity." Mrs. Margaret Mesnard, president of the state auxiliary; Mrs. Minerva Snyder, a director of the national auxiliary, and Mrs. John Marquardt, sergeant at arms of the state body, addressed and helped organize the local auxiliary.

The following officers were elected by the new auxiliary: Mrs. Bessie Overmeyer, president; Mrs. Gladys Craig, vice president; Mrs. Mildred Harrison, recording secretary, and Mrs. Emma Shetler, treasurer.

Texas Auxiliary Contributes to National Scholarship Fund

An interesting business meeting of the Women's Auxiliary to the Associated Master Plumbers of Texas was held in Abilene on April 15. Prospects are bright for a very profitable year in auxiliary work in this state. Although the attendance was small, much interest was shown and a number of new members were taken in. The sum of $25 was donated to the national scholarship fund. Many interesting suggestions for the good of the cause were made and will be put into practice during the com-

ing year. Mrs. George L. Smith, of Amarillo, president: Mrs. R. F. McCarty, of Harlingen, vice president; Mrs. Roy Burke of Amarillo, secretary; and Mrs. R. G. Thomas of San Antonio, treasurer, were all reelected to serve the auxiliary for another year. The officers are hopeful that at least four new auxiliaries will be organized throughout the state before the convention of 1931.

Top row: Mrs. N. L. Nance, Mrs. C. Smith and Mrs. V. H. Duchesne, all of Abilene, Tex. Bottom picture: Mrs. R. G. Thomas of San Antonio, treasurer of Texas auxiliary, and Mrs. Roy Burke, of Amarillo, secretary of Texas auxiliary. Photos taken at convention of the Texas Women's Auxiliary

Program Announced for Women's National Auxiliary

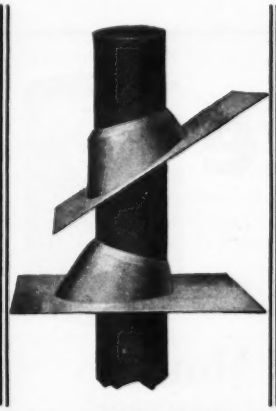
The Women's Auxiliary to the National Association of Master Plumbers will hold its twelfth annual convention at the Hotel Statler, Boston, Mass., June 23 to 26. The office of the women's auxiliary will be in Parlor "F," Hotel Statler, where the members will register and where an information desk will be maintained. The office will be open daily from 8 a. m. to 6 p. m. June 23 to June 26. On Wednesday there will be a bus tour of Boston, Cambridge and Brookline and a luncheon for members of the auxiliary. The tentative program for the business sessions, to be held in the Georgian Room, follows:

Monday, June 23, 2 O'Clock P. M.
Parlor "A," Hotel Statler
Memorial Hour

"Leaves have their time to fall,
The flowers to wither at the north wind's breath,
And stars to set—but all
Thou hast all seasons for thine own—Death."
(Mrs. Henans)

Memorial Prayer—Mrs. D. J. Ahearn.
"One Sweetly Solemn Thought"—National Chaplain.
"Crossing the Bar" (Tennyson).
Roll Call, Deceased Members (States)—Mrs. Foster Fanning, National Recording Secretary.
"Beautiful Isle of Somewhere."

"Beyond the sunset they have gone,
To rest a little while;
The memory of their loving words,
The sweetness of their smile,
Fall like a benediction soft
Upon our lonely night,
And thus they live forevermore,
Though out of mortal sight."



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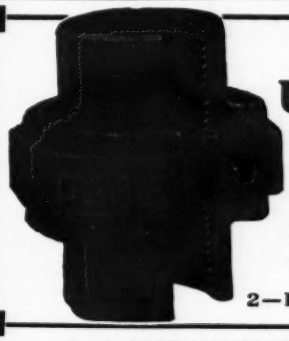
Cast Lead
FLASHING

For a rigid, leak-proof, quickly applied flashing, use the Junior Cast Lead Flashing.

Makes a neat appearing job that lasts for the life of the roof.

From your jobber

Simplex Manufacturing Co.
2044-46 N. Ashland Ave.
Chicago :: Illinois



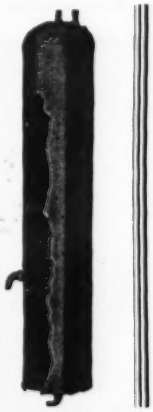
DART UNIONS

Two Bronze Seats in Dart Unions give double wear—double protection against leaks—FOR ONE COST.

2—BRONZE SEATS—2

E. M. DART MANUFACTURING COMPANY
PROVIDENCE, RHODE ISLAND

The Fairbanks Co., Sales Agents
Canadian Factory Dart Union, Limited, Toronto

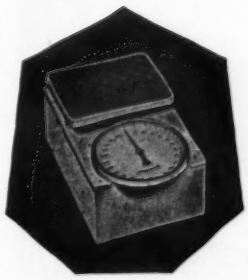


For the best

Gerstein & Cooper Copper Tanks are made for the best work yet they are priced so reasonably that they may be installed in the most modest jobs. Why not get the full information on G & C Copper Tanks, now?

Gerstein & Cooper Co.
1 W. Third St., So. Boston, Mass.
New York Office: 166 W. 72nd St.
Canadian Agents:
G. Mason Price, 832 St. James St., Montreal, Que.

Sell This



A bathroom or health scale that can be sold for $12.00. Larger model for $15.50. Attractive with appealing lines, colors. Six-spring mechanism, 250-lbs. Guaranteed for life. This scale cannot tip. Write for prices.

HANSON SCALE COMPANY
546 North Ada Street, CHICAGO

Ozite

Pipe Covering Means More Protection

Made of felted animal hair, Ozite Pipe Covering for cold water lines will virtually last a lifetime. Proven high efficiency by United States Bureau of Standards, it means greater protection against freezing cold, and elimination of condensation, or "sweating" pipes. Write today for facts and prices.

AMERICAN HAIR & FELT CO.
130 North Wells Street, Chicago, Ill.

Sell Showers
Scores of busy business executives in your community haven't time to fill a bath tub for their morning bath. Cash in on their early morning hustle minutes. Give them this opportunity to hop into a WEISTEEL Shower Cabinet and out again all pepped up for the busy day ahead.
Set WEISTEEL Showers on any floor, against any kind of wall and connect them up. One piece construction prevents leaks. And their low cost makes them easy to sell to individuals, homes, hotels, clubs in your community.
A postal card will bring the facts . . . The HENRY WEIS MFG. CO., INC., Elkhart, Indiana.
WEISTEEL
INTEGRAL SHOWER CABINETS
Patented April 15, 1919

Tuesday, June 24, 2:30 P. M.

Georgian Room

Introduction of National Officers—Mrs. Charles D. Kieser, President, Massachusetts Division, Women's Auxiliary.

Call to Order—Mrs. W. E. McAndrew, President, Women's Auxiliary, National Association Master Plumbers.

Song, "America"—By Assembly.

Invocation—Mrs. D. J. Ahearn, National Chaplain.

Welcome to Boston—Mrs. Herbert L. Rose, President, Boston, Massachusetts, Auxiliary.

Response—Mrs. George W. Frank, First Vice President.

Welcome and Invitation to Exposition—Mr. P. W. Donoghue of Boston, Chairman, National Convention and Exposition Committee.

Response—Miss Alma Niesen, Cincinnati.

Greetings—National Association Master Plumbers.

Address, "Our Trade Press"—Mr. Fergus McLoughlin, Editor, "The Ladle."

"Human Kindness"—Mr. Matthew J. Kennedy, President, New York State Association Master Plumbers.

"Trade Schools"—Mr. Jere L. Murphy of New York.

Women's Auxiliary, Their Value to the Master Plumbers' Association—Mr. George H. Werner of New Jersey.

Vocal Number (Selected)—Miss Alma Niesen.

States of Kansas and Oklahoma—Mr. Harry Stevens, Hutchinson, Kansas.

National Historian—Mrs. W. T. A. Marx.

"Sanitation from the Viewpoint of a Master Plumber"—Mr. John J. Shanahan, Norfolk, Va.

Pacific Coast National Association Master Plumbers and Women's Auxiliary—Mr. Roy E. Thompson, Tacoma, Washington.

Women's Auxiliary Scholarship—Mrs. Charles Werner, Chairman, National Women's Auxiliary Scholarship.

"The Wholesaler"—Mr. Joseph A. Maynard of Waltham, Mass.

Communications.

"Program of the Special Educational Committee"—Mr. C. W. Wanger of Philadelphia, Pa.

Announcements.

Appointments of Convention Committees.

Adjournment.

Thursday, June 26, 9:30 A. M.

Georgian Room

EVERYWHERE IN LIFE THE TRUE QUESTION IS, NOT WHAT WE GAIN BUT WHAT WE DO.—Carlyle

Call to Order, First Business Session—Mrs. George W. Frank, First Vice President, Presiding.

Song, "America"—Assembly.

Address, "The Needlework Guild of America"—Mrs. George H. Flint, Boston.

Reading of Minutes, 1929 Convention—Mrs. Foster R. Fanning, National Recording Secretary.

Reports of National Officers.

Introducing National Directors and State Presidents.

Opportunity Committee—Mr. E. L. Flentje.

Treasurer's Report—Mrs. Robert Liss, Chicago, National Treasurer.

Report of Corresponding Secretary—Mrs. Frank Williams, National Corresponding Secretary.

Reports State Presidents.

Reports Local Presidents (where no State Auxiliary Exists).

Announcements.

Adjournment.

Thursday P. M.

Reports of Committees.

Unfinished Business.

Amendments to Constitution.

New Business.

Election of Officers.

Introduction of New Officers.

Adjournment.

Boston Auxiliary Celebrates First Birthday

The first annual meeting of the Women's Auxiliary to the Boston Association of Master Plumbers was recently held at the home of Mrs. Andrew F. Curtin in Medford. Despite a very foggy night the members came from far and near to attend the first birthday party of this young auxiliary. With the president, Mrs. H. L. Rose, presiding, the annual reports were read and approved. The proceeds of the dance held in February added a substantial sum to the treasury. Due to their efficiency in office, the present officers were unanimously re-elected to serve

another year. Further plans for the national convention to be held in June were discussed. Women's auxiliary events will include a "colonial tea," a luncheon, sightseeing trips, etc. The members were joined by their husbands for the celebration which followed. Delicious refreshments were served.

Midwest Auxiliary Meets

The Women's Auxiliary of the Midwest Sanitary Club held its regular meeting Tuesday, April 8, at the Central Plaza Hotel, Chicago, Mrs. J. MacKenzie, being hostess. After the meeting, cards were played, with honors going to Mesdames William Arnold, F. Kveton, B. E. Lynam, J. I. Riordan, J. MacKenzie. Mrs. B. C. Lynam will be the next hostess.

District of Columbia Auxiliary Elects Officers

The Woman's Auxiliary to the Master Plumbers Association of the District of Columbia has closed its first year. It is proud to report a 100 per cent increase in membership during the year with the members still loyal and interested. The following officers have been installed for the coming year: Mrs. Fred Quinter, president; Mrs. L. V. Clever, first vice president; Mrs. D. H. Alsop, second vice president; Mrs. Erle E. Stacy, secretary; Mrs. George R. Eberly, treasurer, and Mrs. Frank Kerr, sentinel.

Montclair Auxiliary Gives Card Party

The Women's Auxiliary of the Master Plumbers' Association of Upper Montclair, N. J., gave a benefit card party on April 4 at the home of Mrs. Raymond Kierstead, 661 Valley road. Twelve tables of bridge, pinochle, and euchre were required. Refreshments were served later amidst much laughter and merrymaking. The tremendous success of this affair has fired the organization with so much enthusiasm that a number of socials are being planned.

Milwaukee Auxiliary Gives Theater Party

Members of the Ladies' Auxiliary of the Milwaukee Master Plumbers' Association "treated themselves" on April 22, following the end of a series of bowling contests. A theater party, dinner and card party was held at the Elks' Club on that date.

Mrs. O. Waskow, president of the Ladies' Auxiliary, has returned from the hospital and is now convalescing at home. Mrs. Waskow broke her leg early in January, and has been in the hospital since that time. She is still unable to attend meetings of the local auxiliary, but the ladies hope to have her with them soon.

Allentown Auxiliary Elects Officers

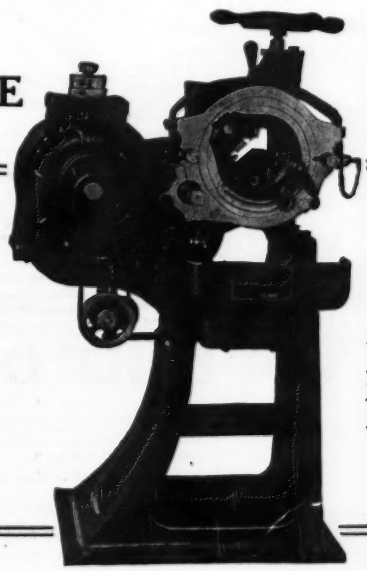
At a recent meeting of the Women's Auxiliary of Allentown, Pa., new officers were elected as follows: President, Mrs. P. C. Lobach; vice president, Mrs. Harry Saeger; secretary, Mrs. Harold Siegfried; treasurer, Mrs. Bortz.

Denver Auxiliary Entertains Visiting Ladies at Colorado Convention

At the time of the convention of the Colorado Society of Sanitary and Heating Engineers, on April 21, the Women's Auxiliary to the Denver Master Plumbers' Association entertained the visiting ladies at a delicious luncheon at the Olin Hotel. The luncheon was enjoyed by nine visiting ladies from Brush, Pueblo, Sterling and Boulder, and eighteen of the Denver members. The table was decorated in yellow and white, with a beautiful floral centerpiece. After luncheon, cards were played, and honors went to Mesdames Cannon, Reeves and Brickey.

Curtis

PIPE THREADING MACHINE



Solve your labor and time loss problems by installing The Curtis Pipe Threading Machine in your shop. It is low in original and operating cost, requires very little floor space and is extremely efficient. Dies turn instead of pipe consequently bends may be threaded with ease.

Send for complete catalog.

No. 442 Motor Driven, Range 1 to 4"

THE CURTIS & CURTIS CO.

318 Garden St. Bridgeport, Conn.

Business Changes

Yakima, Wash.—Edgar O. Drinkwater, 1109 West Yakima avenue, has sold his plumbing and heating business to W. H. Whitson.

Pullman, Wash.—H. D. Powell has purchased the plumbing and heating business of J. E. Hammond.

Bell, Calif.—E. W. Boyle, formerly located at 4308½ Baker avenue, has moved to new quarters at 4213½ Baker avenue.

Los Angeles, Calif.—George B. Klein, formerly in the plumbing and heating contracting business in Buffalo, N. Y., has located in this city, where he has opened a modern display room and shop. The firm name is Klein's Chapman Park Plumbers, 3453 West Sixth street.

Minneapolis, Minn.—The plumbing and heating contracting firm of Huston & Co., for many years located at 915 Marquette avenue, moved May 1 to new quarters at 612 Third avenue, south.

San Francisco, Calif.—C. F. Petsch has sold his plumbing and heating business, located on Umatilla avenue.

Detroit, Mich.—The Lorne Plumbing & Heating Co., 641 West Congress street, has increased its capital stock from $35,000 to $70,000.

Bakersfield, Calif.—The Sumner Plumbing Co., which has been operating in Kerr county for the past ten years, is soon to begin the erection of a modern plumbing establishment on East Nineteenth street.

Los Angeles, Calif.—The F. D. Reed Plumbing Co., which was organized twenty years ago, has been succeeded by the F. D. Reed Plumbing Co., Ltd. The officers of the new company are F. D. Reed, president; Frank Fidel, vice president; M. W. Adams, secretary. No changes will be made in the policies of the company, but the capital stock has been increased.

San Francisco, Calif.—W. S. Warne has removed his plumbing and heating business from 431 Commercial to 337 Commercial street.

Minneapolis, Minn.—The plumbing and heating contracting firm of Charles Wilkins & Co., has moved its offices from 2741 Hennepin avenue to 1428 West 28th street.

New Business Ventures

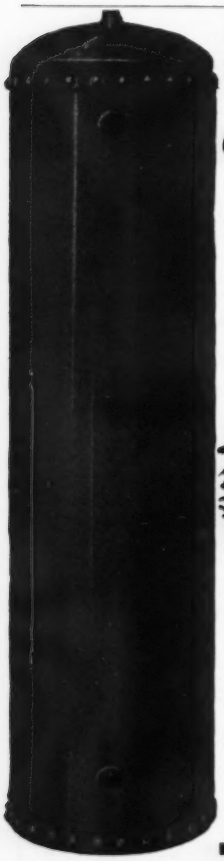
Bakersfield, Calif.—The Modern Plumbing Co. has been incorporated, with a capital stock of $20,000, by H. C. Shaw and Alvin O. Smith of that city and R. W. Shaw of San Francisco.

Tucson, Ariz.—The Cox & Stevenson Plumbing & Heating Co. has been incorporated with a capital stock of $100,000.

Williamsburg, Ia.—R. F. Shore, of Marengo, Iowa, has engaged in the plumbing and heating business.

Newark, N. J.—N. August, Jr., and associates have organized and incorporated the firm of N. August, Jr., and Co., Inc., with a capital of $25,000, to establish and operate a plumbing contracting and engineering business. The new concern is represented by Jack Tapler, local attorney.

Camden, N. J.—The South Jersey Plumbing and Heating Company has been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing and heating contracting and engineering business. The new concern is represented by Patrick H. Harding.



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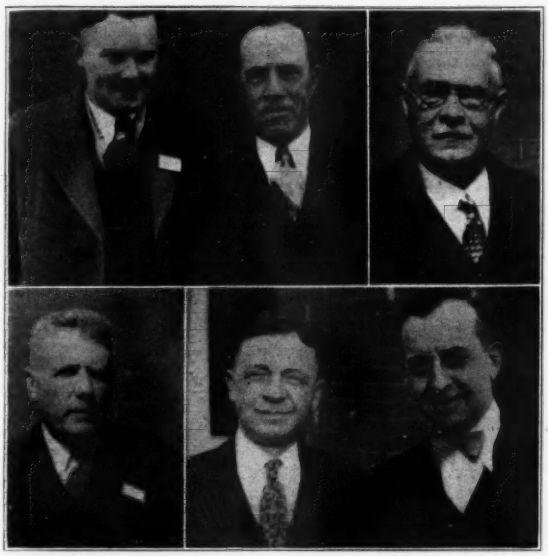
Protect your reputation and satisfy your customer by installing Riverside Copper Range Boilers in conjunction with Copper or Brass piping. They are made of the finest quality of pure Lake Copper, the Metal that time has proven is as indestructible as the Pyramids of old Egypt.

Descriptive circulars of the Riverside Twenty-Year Guarantee Boiler will be sent upon request. Send for them and see for yourself why the Riverside is superior.

Ask your local Wholesaler for prices

RIVERSIDE BOILER WORKS, INC.
CAMBRIDGE MASS.



Top row: P. M. Boquet, A. Y. McDonald Mfg. Co., Kansas City branch; I. L. Ronrk, manufacturers' agent, Kansas City, Mo.; George Suter, Sedalia, Mo. Bottom row: John A. Hohnberg, Lindsborg; F. W. C. Bailey, Eagle-Picher Lead Co., Joplin, Mo., and Joseph Herbert, Central Foundry Co., Chicago office. Photos taken at the recent convention of the Kansas Master Plumbers' Association

Jersey City, N. J.—With a capital of $50,000, the firm of Edward J. Stevens, Inc., has been chartered by E. J. Stevens and associates, to establish and operate a plumbing and heating contracting and engineering business. The new concern is represented by Eichman and Seiden, local attorneys.

Plainfield, N. J.—The Hargreaves Engineering Company has been organized and incorporated, with a capital of $30,000, to establish and operate a heating engineering and contracting business. Hervey Rothberg, local attorney, represents the firm.

Detroit, Mich.—The R. V. Card Co., Inc., 3922 Garland avenue, has engaged in the plumbing and heating contracting business, with a capital of $5,000.

Los Angeles, Calif.—The Knox Plumbing Co. has engaged in the plumbing and heating business at 2766 Knox avenue, the members of the company being W. R. Morgan and J. H. Yates.

Los Angeles, Calif.—The Adwa Plumbing Co. is the name under which J. M. Gardner and A. L. Reeves have engaged in the plumbing and heating business at 2332 South Dunsmuir street.

Los Angeles, Calif.—Ralph M. Anderson and A. E. Curtis have engaged in the plumbing and heating business at 516 West 63rd place, under the name of A. C. Plumbing Co.

San Jose, Calif.—The San Jose Heating & Ventilating Co. has engaged in business at 14 Gummet Arcade building, 123 South Third street, under the management of W. K. Nottingham.

New York City—The Sackson Plumbing Co. has been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing contracting business in the Bronx. The new concern is represented by I. M. Kadel, 2804 Third avenue.

Bristol, Conn.—Grennan & LaFrance, Inc., were recently granted a state charter to engage in the plumbing and heating business at 65 Wooding street. Jerry La

For a Neater, Better Job

In this day of beautiful roofs, the roof flange must lend itself well to any type of job. The Hessler Roof Flange meets any color scheme and looks neater because it's tighter and more compact.

It takes less time, too, because of the special Hessler design. Order Hessler Roof Flanges from your jobber for all your work.

H. E. HESSLER CO.

Syracuse, N. Y.

INSTALL King Tank Heaters. The first cost is low—a great selling feature, and it gives you ample profit, plus an installation charge.

Order from your jobber or write us for information.

OAKLAND FOUNDRY CO., Dept. D. E., Belleville, Ill.

Faulty brass goods can cause more complaints and bad dreams than any contractor can stand.

If your customers have been working your 'phone overtime about the faucet in the bathroom that moans or the one in the kitchen that groans or the one in the basement that plays a tattoo, you can lick all of that with Enterprise.

The way to keep complaints as far away from you as possible is to install Enterprise Brass Goods. Faucets, ball cocks, tank trimmings should bear the name of Enterprise and be backed by the Enterprise guarantee.

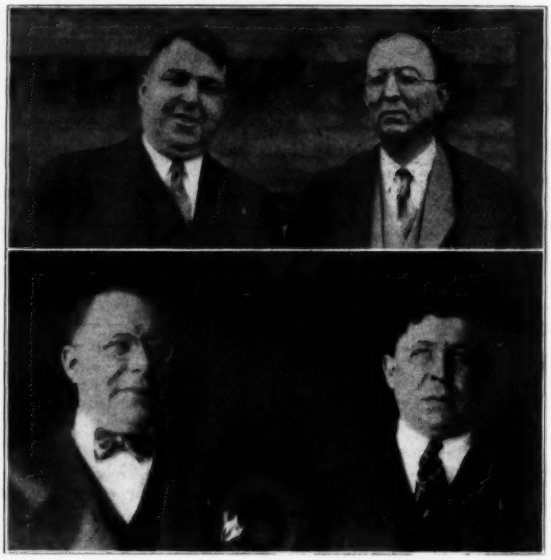
From Your Jobber.

Enterprise
Brass Works
Muskegon, Mich.

France is president and J. P. Grannan, secretary and treasurer of the company.

Bridgeport, Conn.—The D. A. Finnegan Plumbing Co., Inc., has been granted a state charter to engage in the plumbing contracting business, with a capital of $50,000. The incorporators are: D. A. Finnegan, H. Finnegan and F. Finnegan. The shop is located at 1240 Pequonnock street.

Grand Rapids, Mich.—The Knee Heating Co., 706 Wealthy street, has incorporated its business under the same name, with a capital stock of $75,000.



Top row: Edward Byrd, national field representative, and Carl Marsh of Milwaukee. Second row: L. J. Eron and P. A. Eron, both of Wisconsin Rapids. Pictures taken at recent convention of Heating and Piping Contractors, Wisconsin Association

Newark, N. J.—The firm of Phillip Brodsky and Son, Inc., has been chartered here, with a nominal capital of 100 shares of no par common stock, to establish and operate a plumbing engineering and contracting business. The new concern is represented by Griffinger and Griffinger, local attorneys.

Syracuse, N. Y.—The Central City Engineering Company has been organized and incorporated, with headquarters at 602½ East Genesee street, to conduct a heating contracting and engineering business. Principals of the new concern are F. H. Becker, G. C. Truesdall and S. N. W. Hoff.

Newark, N. J.—With a capital of $125,000, the Spell Plumbing and Heating Company has been organized and incorporated, to establish and operate a plumbing and heating contracting and engineering business. The new firm is represented by Zucker and Goldberg.

East Rochester, N. Y.—The Dispatch Plumbing Company has been organized and incorporated, with a capital of 100 shares of no par common stock, to establish and operate a plumbing contracting and engineering business. The new concern is represented by Clay and Friedman, Rochester.

New York City—The Sanitation Company, Inc., has been chartered, with a capital of $10,000, to establish and operate a plumbing contracting and engineering business in Manhattan. T. J. Mooney, 17 John street, represents the new concern.

New Trade Literature

Radiator Shields and Enclosures

W. H. Johnson & Son Co., of New York City, has just issued a folder describing its radiator shields and enclosures. Six new designs for the company's radiator enclosures are illustrated, as well as four types of grilles available in these enclosures. A cross section of a radiator and its enclosure is also shown.

Blotters of Derbyshire, Mack & Morgan, Inc.

Derbyshire, Mack & Morgan, Inc., of Philadelphia, are sending out a series of blotters, one of which is being mailed each month. Each blotter has an amusing illustration in colors, as well as advertising copy. One of these blotters shows a dog allowing a smaller dog to stand on its back, in order that the little one may reach a slab of bacon hanging on a wall. This picture is captioned "Service to others is service to self."

Stroudsburg Septic Tank Co.'s Bulletin

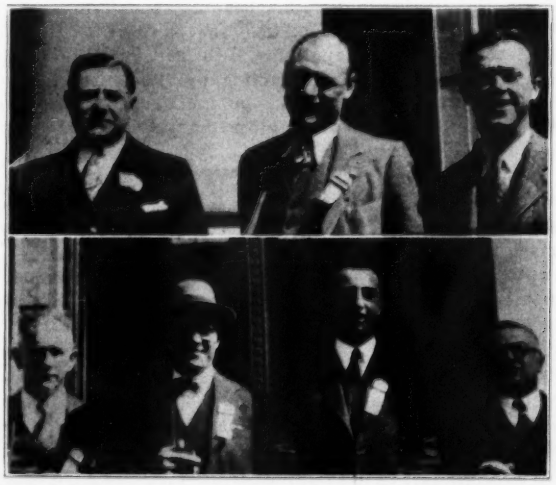
Stroudsburg Septic Tank Co., of Stroudsburg, Pa., has just issued its Bulletin No. 101, describing its reinforced concrete septic tanks, sewage disposal equipment, reinforced and plain concrete pipe. The bulletin gives data for engineer, architect or contractor on the subject of the installation of private sewage disposal plants. A diagram shows a septic tank system for residences, and plans are also given for battery systems for larger installations.

Running Water for Farms

Goulds Pumps, Inc., of Seneca Falls, N. Y., has just issued its Catalog No. 17, "Running Water for farms, suburban homes and estates, country clubs, public and private institutions." The catalog contains fifty-five pages of information in regard to the company's shallow-well water systems, pumps, and equipment. Numerous illustrations are given, as well as diagrams of typical installations.

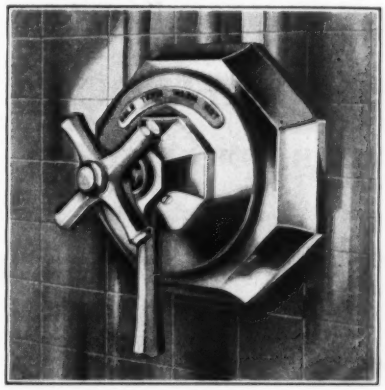
Circular of H. W. Clark Co.

H. W. Clark Co., of Mattoon, Ill., is sending out a circular describing its test and puddle plug for testing joints before covering pipe. The plug is designed to be inserted



Top row: Henry Berg, Andrew I. Green, and Malcolm Walsh, all of Manhattan. Bottom row: Harry Schneider, White Plains; Robert Daines, Yonkers; T. A. Nolan, North Tarrytown; E. J. Sheppard, field secretary of Westchester County association. Photos taken at the convention of the New York State Association of Master Plumbers

LEONARD
Thermostatic
Water Mixing Valves



ART LINE

Catalog C of Leonard Valves, showing Art Line and Colors to match bathroom fixtures, is now ready.

Write for your copy.

LEONARD-ROOKE COMPANY
Elmwood Station Providence, R. I.

Hinges of the Better Kind

Hinge No. 100—Close-Ruf

GRAND HAVEN BRASS FOUNDRY
Grand Haven, Michigan
Hinges for all types of toilet seats
All hinges can be furnished Crodon Plated if so desired.

Say
"HAYDENVILLE"
When You Want
Quality Brass
and Iron Goods

THE HAYDENVILLE CO.
HAYDENVILLE MASSACHUSETTS

Yager's Soldering Salts

There are hundreds of plumbers everywhere who would no more think of tackling a lead job without a can of Yager's than they would without a soldering iron. Try it and discover why they like it. From your jobber or direct.

For All Lead Work

Alex R. Benson & Co., Inc.
Hudson New York
For list of distributors see 1930 McRae Blue Book

Sales Agency for Canada:
Canadian General Electric Co., Ltd.
Toronto and Montreal

WARNOCK
TRIPLE WEAR
WRENCHES

Warnock Wrenches can be adjusted in a jiffy. All that is necessary is to put it on the pipe, pull the strap tight and bear down. They never slip.

Write for our catalog showing sizes and prices.

WARNOCK MFG. CO., Worcester, Mass.

Improved "Wilhelmi"

Unusually strong is the way those who use them describe the Improved WilhelmiCopper Range Boilers.

The special Wilhelmi reenforcing at top and bottom insures added resistance to strain where the strain is greatest.

Let us show you how the Wilhelmi will answer *all* of your questions.

HAYES MFG. CO.
Makers
Paterson, N. J.

in the end of the water main, and tightened, thus plugging the pipe for testing purposes, and permitting water to be drawn from the plug and delivered through a section of hose or pipe to the trench behind.

Folder for Bryan Steam Corp.

Bryan Steam Corp., of Peru, Ind., is sending out a folder with the caption, "Just as much heat, but 30% to 50% less oil." The folder describes the construction of its boiler, especially designed for heating with oil. Two illustrations are given.

Pneumatic Water Supply Systems

Chicago Pump Co., of Chicago, has just issued its Bulletin 111, a collection of data on pneumatic water supply systems. Some of the sections in the bulletin are devoted to explanations of special equipment used in connection with the company's water system, suggestions as to assembly and layout for single and duplex units, and suggestions as to different kinds of pumps that may be used on various jobs.

Folder of Gorton Heating Corp.

Gorton Heating Corp., of New York City, is distributing a folder listing appliances for its single pipe vapor heating system. A quarter turn packing lock radiator supply valve, a vapor trap, an air eliminator and a vapor gauge are illustrated.

Folder of Dececo Co.

The Dececo Company, of Boston, has just issued a folder with the caption, "A New Peak in Lavatory Beauty." The folder illustrates the company's all-china lavatory in orchid, with faucets of flower design in green and orchid. Various color combinations are described. A bath supply and waste fixture is also illustrated and described in the folder.

Folders of EverHot Heater Co.

EverHot Heater Co., of Detroit, Mich., is distributing a small folder with the caption "It's True!" The folder describes an automatic water heater of the company's manufacture. Another folder shows a cross section view of the thermostat, the automatic pilot control and the leakage by-pass for water heaters.

Bulletin of Yeomans Brothers Co.

Yeomans Brothers Co., of Chicago, has just issued its Bulletin No. HS-1200, describing the company's horizontally split case centrifugal pumps, and showing an illustration of a typical installation. Head capacity tables, a description of details of construction, architects' specifications for water supply systems, piping diagrams and a table of friction of water in pipes are included in this bulletin.

"One Church Service That No One Sees"

"One church service that no one sees" is the title of a booklet just issued by the Spencer Heater Co., of Williamsport, Pa. The booklet calls attention to the importance of having a church comfortably heated. Numerous illustrations show churches in which the company's magazine feed heaters are used. Several styles of the heaters are illustrated.

"Engineers of Human Comfort"

"Engineers of Human Comfort" is the title of a booklet just issued by Westinghouse Electric & Mfg. Co., of East Pittsburgh, Pa. The booklet contains the address of L. A. Harding, president of the American Society of Heating and Ventilating Engineers, given over the radio in the series of Westinghouse salutes to America's industries. The address is entitled "Engineers of Human Comfort" and the booklet points out how electricity aids the engineer by means of such apparatus as the motors which drive the ventilating fans of the Holland Tunnel.

Pipelines
Connected by L Y T

BREAKFAST

I

They're killing men in India,
And someone shot his second wife;
There's trouble out in Syria,
And China's full of angry strife.
The gunmen have a-gunning gone,
And burglars burgled several banks.
The kids are tearing up my lawn.
The next war will be fought with tanks.
But what care I?
The coffee's hot, the bacon's crisp and lean,
And it would take an earthquake to upset my mood serene.

II

The stocks I hold are soaring high,
My favorite team won yesterday;
The sun beams from a cloudless sky,
They've signed a pact of peace for aye.
There's pleasant news on every page,
The world seems turned from evil ways.
They say we're in a golden age,
That other lands in envy gaze.
But what care I?
The coffee's cold, the bacon's fat and—ugh!
For just a pin I'd, cheerfully, mess up my good wife's mug.

"I DON'T WANT TO GET WELL"

Patient (To Nurse): Forgive me for saying it, but I'm in love with you. I don't want to get well.

Nurse: Don't worry, you won't. The doctor is in love with me, too.

AS IT'S SAID IN CALIFORNIA

A gentleman from the east was visiting in California. He was enjoying the wonderful California weather, and planned to see the entire state before leaving for home.

"Tomorrow," he told a California acquaintance, "we're going to San Jose," pronouncing the "j" as usual.

"I know you won't mind my correcting you," said his California friend. "Out here we pronounce all j's as h's. We call it San Hose."

The eastern gentleman indicated that he was very glad, indeed, to be corrected.

"By the way," said his friend, "when are you going home?"

"Oh," said the eastern gentleman, "about Hoon or Huly."

G. T. McG.

PRESCRIPTION

Flo: "My feet are burning up. Do you think a mustard bath will help?

Joe: "Sure, there's nothing like mustard on hot dogs."

Don't worry if your job is small
And your rewards are few,
Remember that the mighty oak
Was once a nut like you.

STATION PBF.

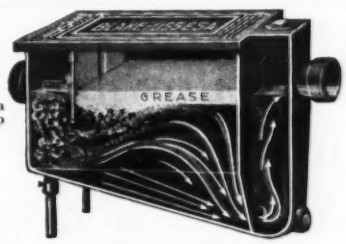
AS THE TIMES CHANGE

In 1899—"Shall we join the ladies?"

In 1930—"Where the hell's my woman?"

Two Irishmen were working together on the roof of a tall building. All at once Pat lost his balance on the edge of the roof. In falling over, he caught hold of Mike's foot, who in turn going over the edge, hooked his hammer in the cornice. There they dangled in the air. Mike looked down at Pat hanging onto his foot and shouted to him: "Pat, if you don't let go of my foot, I'll crack your skull with this hammer."

L Y T.



Blake-Ussesa Grease Trap

BLAKE-USSESA
GREASE TRAP

Nothing to compare with this

This is the original trap of its kind. On the market for 16 years. Highly efficient, odorless and self-cleaning.

In use throughout the United States and meriting highest recommendations.

Made in sizes from 45-gallon water capacity per hour up to 20,000 gallons per hour.

Your jobber will be glad to furnish them.

Meet us in Booth No. 3, of The Master Plumbers' Convention and receive a nice souvenier.

BLAKE SPECIALTY CO.
ROCK ISLAND ILLINOIS

Plumbers tell us why they prefer to install ALBERENE STONE LAUNDRY TUBS

"Alberene Tubs are famous for strength. They usually go right under cellar windows. So, other workmen put planks on them and slide heavy equipment into the cellar. That certainly is abusing a good product. I think they'd even try to get an elephant in that way."

ALBERENE STONE COMPANY
153 West 23rd Street New York City

If the following facts interest you—

KNIGHT-WARE costs less than most acid proof materials. Your initial cost is your LAST cost.

KNIGHT-WARE is easily and economically installed. Waste and Ventilating Pipe and Fittings are hung in much the same manner as ordinary materials. Joints are easily packed and result in permanent leak and acid proof connections.

Positively unaffected by acids, alkalies, chemicals or corrosive solutions and gases and highly resistant to abrasion, there is no wear-out in KNIGHT-WARE. *It lasts the life of the building.*

Consult us.

Chemistry Buildings at these institutions are equipped with KNIGHT-WARE

PRINCETON UNIVERSITY
COLUMBIA UNIVERSITY
WEST VIRGINIA UNIVERSITY
OHIO STATE UNIVERSITY
JOHNS HOPKINS UNIVERSITY
NEW YORK UNIVERSITY
WASHINGTON UNIVERSITY
DUKE UNIVERSITY
PURDUE UNIVERSITY
PENN STATE COLLEGE
LAFAYETTE COLLEGE
BATTELLE MEMORIAL
McGILL UNIVERSITY

MAURICE A. KNIGHT

OFFICE AND PLANT
AKRON, OHIO

KNIGHT-WARE
"IT IS THE BODY ITSELF"

New York City
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Rittenhouse 6300-6301

San Francisco
Merchants Exchange Building
Douglas 375

Montreal, Quebec
1307 Notre Dame Street, West
Main 2625

Niagara Falls
300 United Office Bldg.
Telephone 507

Bath a Day Movement

On "Plumber's Day" in the St. Paul Rotary Club, it was National Director Fred A. Beier's turn to produce an interesting program. He bethought himself of "The Story of the Bath." One hundred copies were shipped and were distributed by him at that meeting. This followed an article written by him for "The Hub," which is the weekly sheet published by the club on Monday. This use of "The Story of the Bath" has been growing in popularity for some time, and more and more members of such clubs as the Rotary, Kiwanis, Lions, etc., are finding in this booklet a splendid souvenir of their talks to their organizations, serving to keep fresh for some time some of the facts about the plumbing business.

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"Following my article on Monday," writes Mr. Beier, "I distributed the copies of 'The Story of the Bath' at the Tuesday noon luncheon meeting, to get the most out of this bath stuff. The whole thing went over well. You will note the two extra shots I got (the editor had referred to Mr. Beier and his business in the issue of April 26), and all the kidding at the meeting from the bunch would indicate that they did read it. I also observed that there were no books left on the tables after the meeting. It seems this was a successful way of getting the bath idea across."

Other men have found it so. If you've never read "The Story of the Bath," write DOMESTIC ENGINEERING, 1900 Prairie Avenue, Chicago, Ill., for a complimentary copy.

Epigrams—For Your Use

Charity that begins at home is often out when anybody calls.

* * *

If it isn't in you to be good there isn't much use trying.

* * *

There are lots of wise men until you get next to them.

* * *

The straight and narrow path is also slippery.

* * *

Butter and axle grease look alike to the man in love.

* * *

A man is likely to be suspicious if his wife isn't jealous of him.

* * *

All men are good—good for something or good for nothing.

* * *

Truth is stranger than fiction to the average married woman.

* * *

Love fills unoccupied hearts and rattles unoccupied heads.

* * *

Some mothers spare the rod and spoil the slipper.

* * *

A man is seldom disappointed in love until after he gets married.

* * *

Cupid is an excellent shot, but he bags some mighty poor game.

* * *

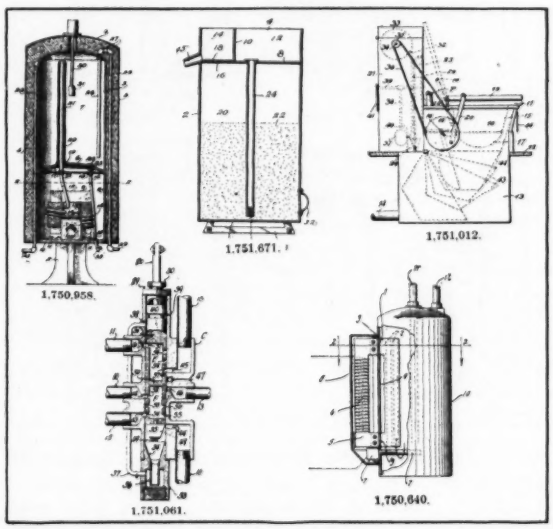
The man who thinks he knows it all has the most to learn.

PATENTS

Plumbing Department

1,750,640. Electrical Water Heater. Ernest E. Kittredge, Alameda, Joseph A. Forster, Oakland, and Rasmus D. Johansen, Alameda, Calif.

1,750,958. Magnetic Liquid Heater. Robert R. Goshorn, Jasonville, Ind., assignor to The All-Ways-Hot Mfg. Co., Jasonville, Ind.



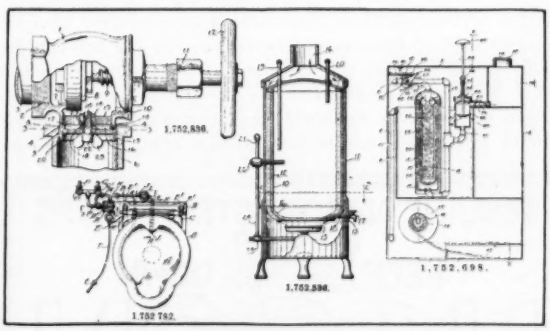
1,751,012. Sanitary Toilet. Fred M. McHenry and Thomas S. Wilkes, Corvallis, Ore.; said Wilkes assignor to said McHenry.

1,751,061. Valve for Water Softeners. Benjamin H. Ter Beest, Madison, Wis.

1,751,671. Water Softener. Glenn E. Webb, Kansas City, Mo.

1,752,536. Stationary Water Heater. Arthur L. Mitchell, Dallas, Tex.

1,752,698. Water Heating and Dispensing Means. John Harold Rogers and Thomas Concha, Los Angeles, Calif.



1,752,782. Water-Closet Attachment. Charles G. Burton, Salem, Ohio.

1,752,836. Valve. William F. Conran, Brooklyn, N. Y.

1,753,968. Gas-controlling Device. Ralph R. Root, Lakewood, Ohio.

80,903. Lavatory. Joseph R. Mayhew, Decatur, Ill., assignor to Mueller Co., Decatur, Ill., a Corporation of Illinois.

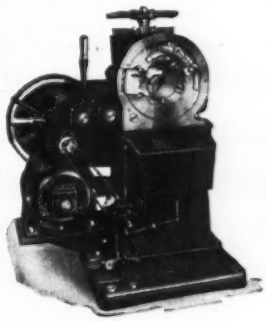
80,928. Urinal. Perry Coke Smith, Bronxville, N. Y.,

Only 3 sets of dies to thread pipe 1 to 6 inches!

It's simplicity in Merrell pipe threading equipment that makes it the big favorite with plumbing and heating contractors.

The Merrell 6½ shown here, does even the most difficult jobs quickly, accurately and economically.

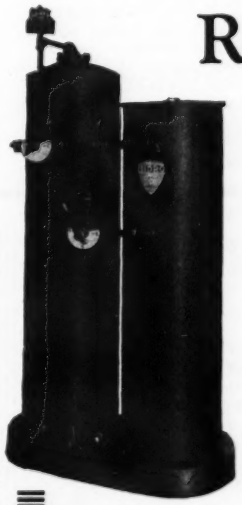
Let us show you how you can make more money and get in on bigger business when you're Merrell equipped.



MERRELL
PIPE THREADING for BETTER threads MACHINES
942 Curtis St. - Toledo, O.
A Pipe Machine for Every Purpose — ¼" to 12" Capacities

$5,000.00
OR
$50,000.00

Regardless —



—of the size of the job there is a HIDRO to fit it. You wouldn't put a bungalow heating plant in an apartment building — fit the WATER SOFTENER TO THE JOB. HIDROWATER SOFTENERS are made in a range of eight sizes. Porcelain enamel brine equipment. Rigid unit construction. Radial distribution. Dual valve control. Write for details.

NORWOOD HYDRO-ENGINEERING CO.
NORWOOD OHIO

The judges of the

CREST $100 CONTEST

for a name for the CREST 3 year Guaranteed Tank Ball, announce

CRESTBAL

as the winning name submitted by

Mr. E. J. WOOD, *Master Plumber*,
1503 Ferdinand Ave., Detroit Mich.

CREST MANUFACTURING CO. INC.
Crest Building, Long Island City, New York

Water Softener

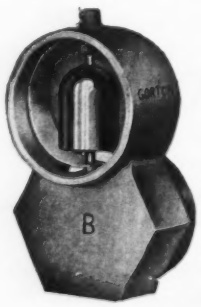
specifications are best met by using

Zeolite Upflow Softeners

The economical and efficient method of producing soft water.

PARAMOUNT WATER SOFTENER CORPORATION

91 West St. New York



The GORTON VAPORTRAP

An outstanding development . . . The Gorton VaporTrap . . . Designed especially for The Gorton Single Pipe Vapor Heating System . . . It insures perfect drainage, prevents waterlogging and gives the HIGHEST RADIATOR EFFICIENCY . . . It is well worth your investigation.

GORTON HEATING CORPORATION
96 Liberty Street :: New York

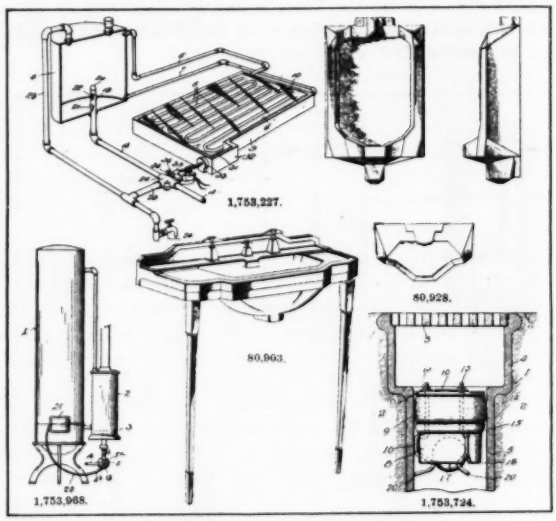
"AMERICAN SEAL"
PIPE JOINT CEMENT

The use of "American Seal" Pipe Joint Cement will absolutely eliminate troublesome and costly, leaky installations. It will not dry out and what is more it is unaffected by heat or cold. Be on the safe side all the time—use "American Seal" on every job.

William Connors Paint Mfg. Co.
Troy .. N. Y.

assignor to The Trenton Potteries Company, Trenton, N. J., a Corporation of New Jersey.

1,753,227. Solar Water-heating System. Henry A. Wheeler, Frank J. Bentz, and James L. Mason, Miami, Fla., assignors, by direct and mesne assignments, of three-fourths to said Frank J. Bentz and one-fourth to L. E. Bentz.



1,753,724. Automatic Backwater Valve. Wallace W. Shaw, Chicago, Ill.

1,753,509. Method of Soldering. Harry S. George, Massapequa, N. Y., assignor to Electro Metallurgical Company, a Corporation of West Virginia. The process of soldering which comprises placing molten solder on a surface to be soldered, and applying to the molten solder a piece of metal having the powerful deoxidizing action and low melting point of sodium.

1,754,068. Process of Water Purification. John T. Travers, Columbus, Charles H. Lewis, Harpster, and Oliver M. Urbain, Columbus, Ohio, assignors, by direct and mesne assignments, to The Ohio Sanitary Engineering Corporation, Columbus, Ohio, a Corporation of Ohio. A process for eliminating phenols from water, comprising incorporating in the phenol solution a mixture containing hydroxide of iron, calcium hydroxide and a catalyst bearing material, and incorporating the mixture in the solution in such proportions that the hydroxide of iron will be present in the solution in a quantity not less than 4.4 grains per gallon, the calcium hydroxide being present in the solution in a quantity not less than 14.8 grains per gallon,

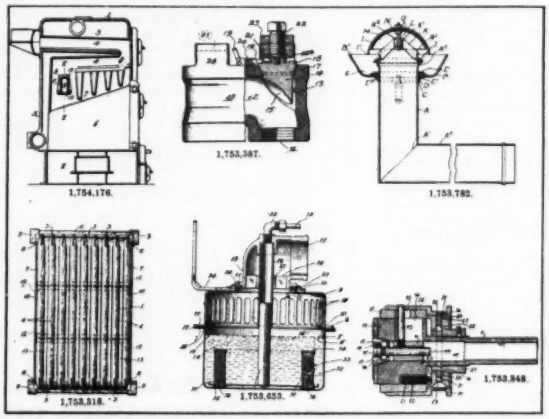
GENUINE NASON STEAM TRAPS
UPKEEP
KEEP DOWN

NASON
NASON MANUFACTURING CO.
71-FULTON ST. NEW YORK N.Y.
Steam Specialty Specialists Since 1841

and the catalyst bearing material being present in the solution in the quantity of not less than 30 grains per gallon.

Heating Department

1,753,848. Self-opening Die Head. Albert F. Breitenstein, New Haven, Conn., assignor to The Geometric Tool Co., New Haven, Conn., a Corporation.



1,754,176. Boiler Furnace. Abram C. Mott, Jr., Lansdale, Pa., assignor to Abram Cox Company, Lansdale, Pa.

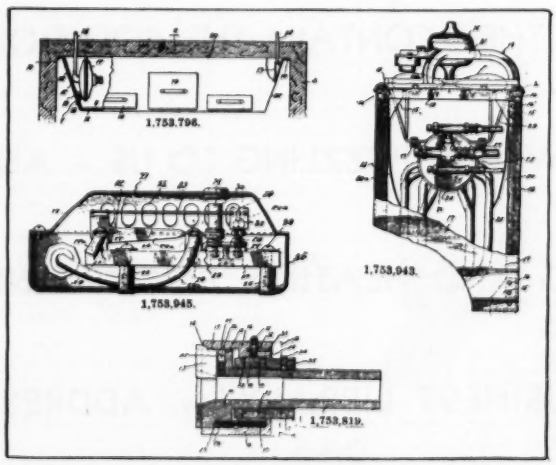
1,753,318. Heat-exchange Apparatus. Clarence E. Safford, Cleveland, Ohio, assignor to Alton H. Greeley, Cleveland, Ohio.

1,753,387. Pipe-bend Plug. Elwood K. Pierce, Springfield, Ohio, assignor to The Ohio Steel Foundry Company, Lima, Ohio, a Corporation of Ohio.

1,753,653. Air Filter. Alfred M. Goodloe, Bradford, Pa., assignor, by mesne assignments, to American Air Filter Company, Louisville, Ky.

1,753,782. Oil-burning Apparatus. Albert E. Grant, New York, N. Y.

1,753,796. Refrigeration. Thomas J. Little, Jr., Detroit, Mich., assignor to Copeland Products, Inc., Detroit.



1,753,943. Refrigerating Apparatus. John R. Replogle, Detroit, Mich., assignor, by mesne assignments, to Kelvinator Corporation, Detroit, Mich.

1,753,819. Self-opening Die Head. Albert F. Breitenstein, New Haven, Conn., assignor to Geometric Tool Co.

1,753,945. Thermostat Controller. John R. Replogle, Detroit, Mich., assignor to Kelvinator Corporation, Detroit.

Plumbers—Here is the Reason!

Never before has the construction of gasoline furnaces been so thoroughly simplified. Above are illustrations of the complete burner assembly and the new re-inforced top plate, which are featured in the No. 39 and No. 40 furnaces. The complete burner assembly can be easily removed in one simple operation. Merely unscrew the union and lift the complete assembly through the slot in the top plate.

There is a good solid reason why you see more "ALWAYS RELIABLE" furnaces and torches among plumbers than any other brand. Compare them—Test them in any way you want and you'll always come to the same conclusion. They are foremost in quality, price and value, and you'll never regret having them as a part of your daily equipment.

Order through your distributor who will give you prompt service and satisfactory prices.

OTTO BERNZ CO., INC.
NEWARK : NEW JERSEY

Stocks in
Newark, N. J. San Francisco, Calif. New York City

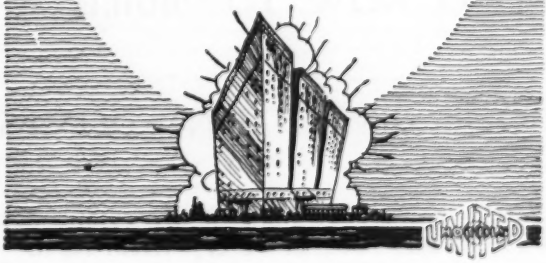
"ALWAYS RELIABLE"

THE BENJAMIN FRANKLIN
PHILADELPHIA
Chestnut at Ninth Street

Unquestionably the ideal hotel in Philadelphia. Attentive service, enjoyable environment, traditional hospitality and above all, maximum comfort.

Twelve hundred rooms, each with bath
Rates commence at $4.00

HORACE LELAND WIGGINS, Managing Director



CLASSIFIED

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion. One inch $4.00.

Situations Open

SALESMEN—EXPERIENCED IN selling a complete line of high grade cast iron specialties direct to the plumber. Applicants must own and drive auto and be thoroughly established in territory for which they apply. Give full particulars in application with reference, experience, etc. Straight commission will be paid. Address Key 515, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

SALESMEN — EXPERIENCED IN selling a complete line of exclusively high grade plumbing brass goods direct to plumbing contractors. Applicants must own and drive auto and be thoroughly established in territory for which they apply. Give full particulars in application with references, experience, etc. Commission with drawing account, after ability has been proved. Address Key 480, "Domestic Engineering." 1900 Prairie Avenue, Chicago.

REPRESENTATIVES WANTED IN leading cities to handle highest grade line of radiator shields and radiator cabinets. Our representatives earn $500.00 to $1,000.00 per month the year around, above expenses. Full selling plan furnished. Address Key 256, "Domestic Engineering," 1900 Prairie Ave., Chicago

SALESMEN WITH EXPERIENCE AND a following among the plumbing trade to sell direct, a line of plumbers' brass and specialties. Strictly commission basis. Outline experience and give references. Address Key 507, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

SALESMAN: PORCELAIN WARE—Westchester and Long Island—commission only—excellent side line—must be acquainted with trade. Ashland 0295, New York City.

WONDERFUL MONEY-MAKING EXclusive or side-line proposition for salesman calling on plumbing dealers. Write us today. KOIL-LES HEATER COMPANY, Geneva, Illinois.

COMMISSION SALESMAN HANDLING a non-competing line calling on architects and the larger plumbing contractors to handle a nationally advertised line of drainage specialties. Address Key 508, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

ESTIMATOR AND GENERAL SUPERintendent wanted. Must be thoroughly acquainted with all types of heating and plumbing. Good salary. Address A. J. Buckel Plumbing & Heating Company, Inc., 3225 Park Avenue, St. Louis, Missouri.

Situations Wanted

EXPERIENCED SALESMAN AND Office Man now employed wants to make a change. Several years' experience plumbing and heating and mill supplies. Address Key 514, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

STEAMFITTER FOREMAN, HIGH and Low Pressure. Fourteen years, present employer desires change. Best references open for interview. Address Key 516, "Domestic Engineering," Room 1507, Finance Building, Philadelphia, Pennsylvania.

SALESMAN—FORTY-EIGHT YEARS old. Twenty-five years' active sales experience. City and country territory. Thoroughly familiar with all branches of plumbing and heating industry and kindred lines. Prefer Middle West. Address Apartment 1, 1503—5th Avenue, Des Moines, Iowa.

FIRST CLASS PLUMBER, TWENTY years' experience, fair heating knowledge, desires position with progressive firm. Business interest considered later. Address Key 520, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

PLUMBING AND HEATING SUPERintendent, estimator, and engineer, with twenty years' experience, desires position. Available at once. Address Key 492, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

Lines to Handle

ATTRACTIVE DISTRIBUTORSHIPS OPEN

We have a few attractive territories open for capable representatives to handle our line of electric water pumps and systems. Experience preferable. Must be able to furnish good references. Write THE DAYTON PUMP & MANUFACTURING COMPANY, Dayton, Ohio.

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Live sales organization is ready to solve your sales problem in Baltimore, and entire East. Long experience in plumbing and heating field, established contacts with big buyers, excellent representation, offices and warehouse facilities. Sell on account of purchaser or will carry accounts and make deliveries. Complete branch houses. Facilities on most economical basis. MANUFACTURERS DISTRIBUTING CORPORATION, 508 Hearst Tower Building, Baltimore, Maryland.

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THE TABLE OF ESTIMATED RADIATION. By Harry B. Perrigo. Gives the accurate amount of radiation required for any size room. Computed from standard recognized rules and simplified to a degree that makes it readily understood by any man with even a limited knowledge of heating. Two tables—one for steam and the other for water—are printed in two colors on heavy celluloid—making four pages in all. Substantially bound. Size 4½x7¼ in. Saves time and eliminates errors. Price, postpaid, $1.00.

MERCHANDISING THE PLUMBING BUSINESS. By Karl W. Zoeller. A treatise on merchandising as applied to the plumbing and heating business, that should be read by every plumber, contractor or jobbing plumber. The subject is completely covered by the twenty-six chapters, and in a manner making it interesting and easy to read. It contains many valuable suggestions on Window Display, Showrooms, Advertising, etc. No matter how large or small your business, you need this book. Size 4½x6¾ inches. Over 100 pages. Price, postpaid, $1.50.

OVERHEAD EXPENSE AND PERCENTAGE METHODS. By Henry F. Baillet. Master plumbers and steamfitters are realizing more and more the importance of including their overhead expense as a part of each contract. It is the only sure way of showing the correct margin of profit on business handled for the year. In compiling this book, Mr. Baillet has used data taken from actual business experience. Shows how to figure properly the cost of doing business and the correct percentage of profit on any contract. A book worth many times its cost. Size, 4½x7 in. 128 pages. 24 tables. Cloth. Price, $1.50.

SANITARY SEWERAGE OF BUILDINGS. By Thomas S. Ainge. Beginning with a study of outside sewers, this book goes fully into the best practice in inside connections, proper location and size of soil waste, and vent pipes and the roughing-in test up to the filling in of the trenches. 40 pages are devoted to the important subject of traps. Sewage disposal for country homes is also given full consideration. Size 5½x8 in. 200 pages. Cloth. Price, $1.50.

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Plumbers' Bin Labels

for Wood or Steel Bins

Send for samples and prices of card holders, bin labels and stop valve tags, and free booklets: "How to Lay Out the Plumbing Shop" and "How to Train the Apprentice Boys." Haddon Bin Label Co., Haddon Heights, N. J.

Use these pages to get what you want

If you are looking for competent employes; or if you contemplate a change in position, have a patent for sale; wish to purchase or sell a plumbing and heating business; second-hand machinery or tools; form a co-partnership, etc., your advertisement on these pages will put you in touch with the people you desire to reach.

The cost of insertion is only eight cents a word and may mean many dollars to you.

YOU WOULD not think of missing your daily paper, yet it does not begin to help you as your business paper does, so why not spend a minute to send in your subscription? You will soon realize the tremendous help you have been doing without.
Domestic Engineering, 1900 Prairie Ave., Chicago

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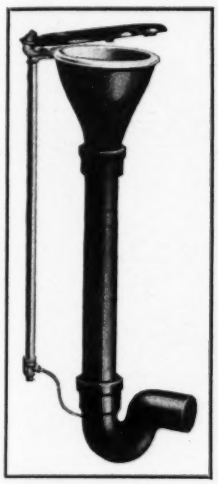
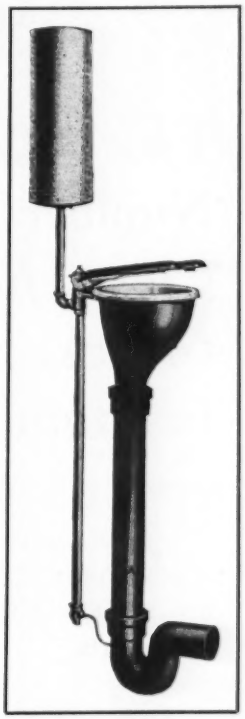
A HAAS Porcelain Enameled Flushing Rim Hopper



FROST PROOF CLOSET



Here's a worthy addition to the Haas line—and an important item for you to keep in mind for localities where a flushing rim unit is required. The original Haas patented automatic seat action valve stem with drain tube, and the combination check and inlet valve, already known to the trade, are a part of this *new* model Haas Frost Proof Closet.

Made to meet a particular need—not to supplant other Haas models. Comes in two types—direct action, continuous flushing while seat is depressed (no tank required), or with tank, flushing when seat is released.

WITH SIX POINTS OF SUPERIORITY

1 No backwash of sewage into fresh water lines. Keeps drinking water free from pollution—protects the health.

2 Valve of best red brass—springs of phosphor bronze. Only two washers in the entire valve assembly.

3 Unusually simple construction—easy to install. Profits on the sale not dissipated on time and labor.

4 The complete operating rod lifts out of the hydrant casing intact, making it easy to take apart.

5 Time-proved efficiency—little or no servicing. Haas quality insures absolute minimum upkeep.

6 The dependable Haas Guarantee, backed by 25 years of Haas success. Worth your earnest consideration.

AND A PRICE THAT GETS THE BUSINESS

The Haas Frost Proof Closet with *porcelain enameled flushing rim hopper* is offered at a price that will put you in line to *get the business*. See for yourself. Ask your jobber. He can supply you.

Haas

THE PHILIP HAAS CO., Inc.
DAYTON, OHIO

ANOTHER OPPORTUNITY FOR PROFIT ON VOGEL PRODUCTS

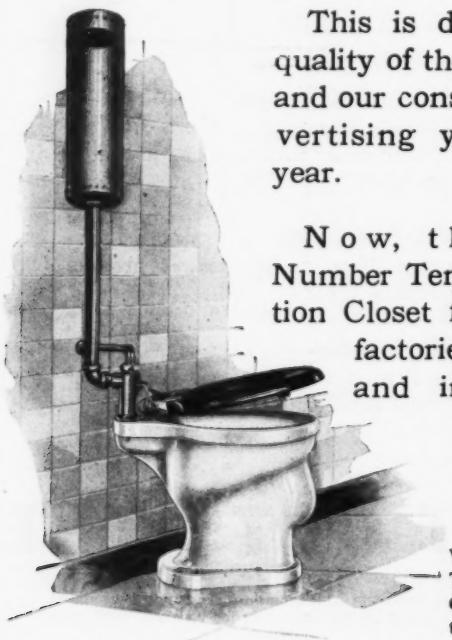
The VOGEL SELFLUSH Number Ten Seat-Action Closet for Plants, Factories, Schools and Institutions . . . . . .

Vogel "Selflush" Number Ten-A seat-action closet combination, with tank concealed.

For more than 23 years plumbers have been making good profits on VOGEL Frost-Proof Closets and Hydrants.

This is due to the quality of the products and our consistent advertising year after year.

Now, the VOGEL Number Ten Seat-Action Closet for plants, factories, schools and institutions is still another avenue of profit for you. VOGEL quality is built into the VOGEL Number Ten, and our advertising is even more extensive, going before school boards, mill owners, plant superintendents and all prospects for VOGEL Number Ten and Ten-A Seat-Action Closets.



Vogel Number Ten Seat-action Closet, with tank exposed.

Work with this advertising and you'll make still more profit on VOGEL products. Tell us if you want stickers or folders imprinted with your name and address.

See inside front page for VOGEL Frost-Proof advertisement

JOSEPH A. VOGEL COMPANY
Wilmington, Del. St. Louis, Mo.

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